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LESSONS 21 - 30

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Nos. 21 - 30

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SPECIAL BULLETIN
No. 21
G-2/2657-231

MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT
Washington, October 21, 1940

NOTICE

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CHARACTERISTICS OF SOVIET ARTILLERY WEAPONS

SOURCE

The information contained in this bulletin is based primarily upon the reports of official American observers and secondarily upon handbooks concerning the Red Army and other publications. Paragraph 2d is based upon information received from very doubtful sources in May and June, 1940.

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1. FIELD ARTILLERY WEAPONS

a. Infantry Regimental Artillery *

(1) 76-mm. Howitzer, 1927-1936

Actual caliber: 76.2 mm.
Length: For the 1927 model, 16.5 calibers. The new model has an extra short tube, although its exact length is not known.
Muzzle velocity: 360 meters per second.
Weight of projectile: 6.5 kilograms.
Weight in firing position: 680-780 kilograms.
Weight in traveling position: 1320-1420 kilograms.
Range: 6-7 kilometers.
Number of shots per minute: 10-15.
Effective radius of burst: 15 x 30 meters.
Trail: Two I-beams.
Motive power: 4 horses or tractor.

b. Divisional Field Artillery

(2) 76-mm. Gun, 1902

Actual caliber: 76.2 mm.
Length: 30 calibers.
Muzzle Velocity: 588 meters per second.
Weight of projectile: 6.5 kilograms.
Weight in firing position: 1040-1100 kilograms.
Weight in traveling position: 2050 kilograms.
Range: 8.75 kilometers.
Trail: Single.
Motive power: 6 horses or truck.

(3) 76-mm. Gun, 1902-1930

Actual caliber: 76.2 mm.
Length: 40 calibers.
Muzzle velocity: 588 meters per second.
Weight of projectile: 6.5 kilograms.
Weight in firing position: 900 kilograms.
Weight in traveling position: 1800-2020 kilograms.
Range: 8.5-13 kilometers.

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* Note: In addition to the 76-mm. howitzer, 1927-1936, the Infantry Regimental Artillery probably uses 37-mm. and 45-mm. antitank guns similar to those used by the Infantry. They will be described in a forthcoming bulletin of this series.

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Number of shots per minute: 6-8.
Effective radius of burst: 15 x 30 meters.
Trail: Single.
Motive power: 6 horses or tractor or truck.
Remarks: This gun has been standard until recently.

(4) 76-mm. Mountain Gun 1909

Actual caliber: 76.2 mm.
Length: 16.5 calibers.
Muzzle velocity: 380.
Weight of projectile: 6.5 kilograms.
Weight in firing position: 545-625 kilograms.
Weight in traveling position: 1326-1365 kilograms.
Range: 7 kilometers.
Number of shots per minute: 10-15.
Effective radius of burst: 15 x 30 meters.
Trail: Box.
Motive power: 8 loads in pack, or truck.

(5) 76-mm. Gun 1933 (Extra Long Rifle)

Actual caliber: 76.2 mm.
Length: 60 calibers (doubtful).
Shell: Streamlined.
Range: 13 kilometers.
Trail: Split.
Motive power: 6 horses or tractor.
Remarks: Probably an experimental model, since it appears too long to be practical in the field.

(6) 76-mm. Gun 1936

Actual caliber: 76.2 mm.
Length: 46 calibers.
Muzzle velocity: 706 meters per second.
Weight of projectile: 6.5 kilograms.
Weight in traveling position: 1700 kilograms.
Range: 13.5 kilometers.
Trail: Split.
Motive power: Motor drawn; excellent pneumatic rubber tires.
Remarks: Reported to be the most modern type in use; used in Finnish war; easily maneuverable; said to be capable of antiaircraft fire, but this doubtful.

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(7) 122-mm. Schneider Howitzer, 1910

Actual caliber: 122.3 mm.
Length: 13 calibers.
Muzzle velocity: 335 meters per second.
Weight of projectile: 23 kilograms.
Weight in firing position: 1300 kilograms.
Weight in traveling position: 2380 kilograms.
Range: 7.7-9.5 kilograms.
Number of shots per minute: 6-7.
Effective radius of burst: 20 x 60 meters.
Trail: Box.
Motive power: 6 horses or tractor or truck.
Remarks: Obsolete but possibly still in use.

(8) 122-mm. Schneider Howitzer, 1910-1930

Actual caliber: 122.3 mm.
Length: 12.8-13 calibers.
Muzzle velocity: 231 meters per second (doubtful).
Weight of projectile: 23 kilograms.
Weight in firing position: 1365 kilograms.
Weight in traveling position: 2120 kilograms.
Range: 9.6 kilometers.
Trail: Box.
Motive power: 6 horses or tractor or truck.

(9) 122-mm. Krupp Howitzer, 1909

Actual caliber: 122.3 mm.
Length: 14 calibers.
Muzzle velocity: 335 meters per second.
Weight of projectile: 23 kilograms.
Weight in firing position: 1330 kilograms.
Weight in traveling position: 2380 kilograms.
Range: 7-7.5 kilometers.
Motive power: 6 horses.
Remarks: Obsolete type, but possibly still in use.

c. Corps Artillery

(10) 107-mm. Schneider Gun, 1910

Actual caliber: 106.7 mm.
Length: 28 calibers.
Muzzle velocity: 580 meters per second.
Weight of projectile: 16.4 kilograms.

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Weight in firing position: 2180-2280 kilograms.
Weight in traveling position: 2480-2520 kilograms.
Range: 11.5-16 kilometers.
Number of shots per minute: 6-7.
Effective radius of burst: 20 x 60 meters (doubtful)
Motive power: 6-8 horses or tractor.

(11) 107-mm. Schneider Gun. 1910-1930

Actual caliber: 106.7 mm.
Length: 28 calibers.
Muzzle velocity: 588 meters per second.
Weight of projectile: 16.6 kilograms.
Weight in firing position: 1800 kilograms.
Weight in traveling position: 2270-2490 kilograms.
Range: 16.5 kilometers.
Number of shots per minute: 6-7.
Effective radius of burst: 20 x 60 meters (doubtful).
Trail: Box.
Motive power: 6 horses or tractor.

(12) 122-mm. Gun-Howitzer (new)

Actual caliber: 122.3 mm.
Weight in firing position: 4550 kilograms.
Trail: Split.
Motive power: Tractor; 4 hard rubber wheels on carriage.
Remarks: Probably an experimental type; may replace both the 107-mm. gun and the 152-mm. howitzer if successful.

(13) 152-mm. Schneider Howitzer. 1909-1910

Actual caliber: 152.4 mm.
Length: 12-13.5 calibers.
Muzzle velocity: 341-380 meters per second.
Weight of projectile: 41 kilograms.
Weight in firing position: 2270-2700 kilograms.
Weight in traveling position: 2725-3100 kilograms.
Range: 10-12 kilometers.
Effective radius of burst: 25 x 70 meters.
Motive power: 6-8 horses or tractor.
Remarks: Obsolete type, but possibly still in use.

[redacted]

(14) 152-mm. Schneider Howitzer, 1910-1930

Actual caliber: 152.4 mm.
Length: 12 calibers.
Muzzle velocity: 380 meters per second (doubtful).
Weight of projectile: 41 kilograms.
Weight in traveling position: 3065 kilograms.
Range: 11.5-12 kilometers.
Effective radius of burst: 25 x 70 meters.
Motive power: 6-8 horses or tractor.

d. Field Artillery with Cavalry Units *

(15) 114-mm. Vickers Howitzer

Actual caliber: 114.3 mm.
Length: 15.5 calibers.
Muzzle velocity: 311 meters per second.
Weight of projectile: 14.5-15.9 kilograms.
Weight in firing position: 1370-1545 kilograms.
Range: 7.5 kilometers.
Trail: Box.
Motive power: 6 horses.

e. GHQ Artillery **

(16) 152-mm. Schneider Gun, 1910

Actual caliber: 152.4 mm.
Length: 28 calibers.
Muzzle velocity: 640 meters per second.
Weight of projectile: 41 kilograms.
Weight in firing position: 4600-5760 kilograms (doubtful).
Weight in traveling position: 6000 kilograms (doubtful).

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* Note: Separate Cavalry brigades usually have 76-mm. mountain guns (see 1b (4)). Cavalry divisions have 122-mm. howitzers (see 1b (7), (8), and (9)) and 76-mm. guns, Model 1902-1930 (See 1b (3)), as well as 114-mm. howitzers. Cavalry Corps have 107-mm. guns (see 1c (10) and (11)) and 114-mm. howitzers.

** Note: The GHQ (ARGK) Artillery has about 20 calibers ranging from 20 mm. to 406 mm., including many obsolete models. In addition to those listed under this heading, it has French 155-mm. guns, French 240-mm. trench mortars, 40-mm. automatic guns, and 76-mm. antiaircraft guns, as well as 76-mm. guns (See 1b (12), (13), (15) and (16)) and 107-mm. guns (See 1c (20) and (21)).

[redacted]

[redacted]

Range: 12.5-18 kilometers (doubtful).
Effective radius of burst: 25 x 70 meters.
Motive power: Motorized.

(17) 152-mm. Soviet Gun

Actual caliber: 152.4 mm.
Length: 30 calibers.
Muzzle velocity: 600 meters per second.
Weight of projectile: 41 kilometers.
Weight in firing position: 5225 kilograms.
Range 12 kilometers.
Motive power: Motorized.
Remarks: This is possibly a modernization of the Schneider gun.

(18) 152-mm. Vickers Howitzer *

Actual caliber: 152.4 mm.
Length: 14.6 calibers.
Muzzle velocity: 365 meters per second.
Weight of projectile: 98 kilograms.
Weight in firing position: 3360 kilograms.
Range: 8.7 kilometers.
Motive power: 12 horses or tractor.

(19) 203-mm. Vickers Howitzer

Actual caliber: 203.4 mm.
Length: 15.9 calibers.
Muzzle velocity: 400 meters per second.
Weight of projectile: 90 kilograms.
Weight in firing position: 7725 kilograms.
Range: 9.2-15 kilometers.
Motive power: Tractor.

(20) 210-mm. Howitzer

Remarks: A weapon of this caliber has been mentioned in a Soviet publication. It is known that some of them were ordered from Czechoslovakia.

(21) 280-mm. Schneider Howitzer, 1915

Length: 11.5 calibers.

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* Note: There is also a 152-mm. Schneider howitzer.

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Muzzle velocity: 315 meters per second.
Weight of projectile: 200 kilograms.
Weight in firing position: 16,100 kilograms.
Weight in traveling position: 5420 kilograms.
Range: 9.6 kilometers.
Rate of fire: 1 shot in 2 minutes.
Motive power: Tractor.
Remarks: A new experimental 280-mm. howitzer was seen in November, 1939. It was perhaps an old Schneider 280-mm. on a new mount.

(22) 305-mm. Obukhov Howitzer, 1915

Length: 20 calibers.
Muzzle velocity: 440 meters per second.
Weight of projectile: 377 kilograms.
Weight in firing position: 57,280-67,500 kilograms (doubtful).
Weight in traveling position: 20,000 kilograms (doubtful).
Range: 13.5 kilometers (Howitzer has possibly been relined to give greater range).
Rate of fire: 1 shot in 3 minutes.
Motive power: Railway.

(23) 305-mm. Vickers Howitzer

Length: 15 calibers.
Muzzle velocity: 365 meters per second.
Weight of projectile: 123-340 kilograms (doubtful).
Range: 10.5 kilometers.
Motive power: Tractor.

(24) 406-mm. Gun *

Actual caliber: 406.4 mm.
Weight of projectile: 877 kilograms.
Range: 22-23 kilometers.
Motive power: Railway.

2. ANTIAIRCRAFT ARTILLERY WEAPONS

a. Antiaircraft Guns

(1) 76-mm. M/33 Gun

Length: 50 calibers.

* Note: It is not definitely known whether this weapon is a gun or a howitzer.

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Muzzle velocity: 800 meters per second.
Weight of projectile: 6.5 kilograms.
Maximum horizontal range: 14.5 kilometers.
Maximum vertical range: 9.5 kilometers.
Rate of fire: 20-25 shots per minute.
Motive power: Fixed or tractor.

(2) 76-mm. M/15/28 Gun

Length: 40 calibers.
Muzzle velocity: 640 meters per second.
Weight of projectile: 6.5 kilograms.
Weight in traveling position: 6000 kilograms.
Maximum horizontal range: 11 kilometers.
Maximum vertical range: 7 kilometers.
Rate of fire: 10-12 shots per minute.
Motive power: 4-wheel tractor.

(3) 76-mm. M/15 Gun

Length: 36-40 calibers (doubtful).
Muzzle velocity: 588 meters per second.
Weight of projectile: 6.5 kilograms.
Weight in firing position: 1278 kilograms.
Weight in traveling position: 1278 kilograms.
Maximum horizontal range: 9.5 kilometers.
Maximum vertical range: 6 kilometers.
Rate of fire: 10-12 shots per minute.
Motive power: 4-wheel tractor.
Remarks: This is an obsolescent type.

(4) 76-mm. Gun

Length: 50 calibers.
Muzzle velocity: 1136 meters per second.
Weight of projectile: 4.4 kilograms.
Weight in firing position: 2365 kilograms.
Weight in traveling position: 3400 kilograms.
Motive power: Truck.
Remarks: Data doubtful; apparently not accurate.

(5) 76-mm. Gun. 1900

Remarks: Formerly in use, but now obsolete or obsolescent; had simplified mount.

(6) 76-mm. Gun. 1900

Remarks: Formerly in use, but now obsolete or

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obsolescent; had Ivanov mount.

(7) 76-mm. Gun, 1902

Remarks: Formerly in use, but now obsolete or obsolescent; had Ivanov mount; length, 30 calibers.

(8) 76-mm. Putilov Gun, 1914-1915

Remarks: Formerly in use but now obsolete or obsolescent; length, 30 calibers.

(9) 80-mm. Bofors Gun

Length: 51 calibers.
Muzzle velocity: 750 meters per second.
Weight of projectile: 8 kilograms.
Weight in firing position: 3000 kilograms.
Weight in traveling position: 4000 kilograms.
Maximum horizontal range: 15 kilometers.
Maximum vertical range: 9.7 kilometers.
Motive power: Tractor.
Remarks: In 1933 the U.S.S.R. purchased a few of these guns from Bofors, but there is no record of its purchasing any ordnance from this company during the years 1934-1937. Bofors also makes 76-mm. antiaircraft guns of this type. It is not known whether the Red Army, which is the principal one using 76-mm. guns, has any of these.

(10) 88-mm. Gun

Remarks: It has been reported that fifteen of these guns were ordered from Germany in 1927. Their use at this time is doubtful, although an observer in Moscow in June, 1940, said the Red Army had 88's, both truck-drawn and tractor-drawn.

(11) 105-mm. Leningrad M/34 Gun

Length: 60 calibers.
Muzzle velocity: 945 meters per second.
Weight of projectile: 15 kilograms.
Weight in firing position: 10,500 kilograms.
Maximum horizontal range: 18 kilometers.

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Maximum vertical range: 13 kilometers.
Rate of fire: 20 shots per minute.
Motive power: Fixed or tractor.
Remarks: This gun is possibly a modification of a Bofors prototype and not an original Soviet design.

(12) 117-mm. Gun

Remarks: It has been reported, but not confirmed, that 60 of these weapons were ordered in 1924 and are now possibly installed as fixed coast defense guns.

b. Automatic Antiaircraft Guns

(13) 20-mm. Oerlikon Automatic

Length: 70 calibers.
Muzzle velocity: 870 meters per second.
Weight of projectile: 128 kilograms.
Weight in firing position: 235-300 kilograms.
Weight in traveling position: 600 kilograms.
Maximum horizontal range: 5 kilometers.
Maximum vertical range: 3.7 kilometers.
Rate of fire: 200-250 shots per minute.
Motive power: 1 or 2 horses.
Remarks: Use of this gun in the Red Army is doubtful. No report has been made on it since 1933, when it was in use.

(14) 40-mm. Vickers Automatic

Length: 50 calibers.
Muzzle velocity: 720 meters per second.
Weight of projectile: 0.913 kilograms.
Weight in firing position: 737 kilograms.
Maximum horizontal range: 7 kilometers.
Maximum vertical range: 4 kilometers.
Motive power: Motor or horse-drawn.
Remarks: Although it is listed in a German handbook, use of this weapon in the Red Army is doubtful.

(15) 40-mm. Vickers M-18 Automatic

Length: 40 calibers.
Muzzle velocity: 610 meters per second.

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Weight of projectile: 0.911 kilograms.
Weight in firing position: 1327 kilograms.
Maximum horizontal range: 5.7-7.1 kilometers.
Maximum vertical range: 4-5.7 kilometers.
Rate of fire: 80-200 shots per minute.
Motive power: 1 or 2 horses.

c. Antiaircraft Machine Guns

(16) 7.62-mm. Maxim

Muzzle velocity: 880 meters per second.
Weight in firing position: 80 kilograms with mount.
Maximum horizontal range: 2.75 kilometers.
Maximum vertical range: 1 kilometer.
Rate of fire: 250-500 shots per minute.
Motive power: Truck.
Remarks: Tripod mount; belt fed, 250 rounds; also mounted in groups of three or four machine guns on trucks.

(17) 13.2-mm. Hotchkiss

Length: 76 calibers.
Muzzle velocity: 800 meters per second.
Weight of projectile: 0.052 kilograms.
Weight of firing position: 97 kilograms.
Weight in traveling position: 200 kilograms.
Maximum horizontal range: 6.5-7 kilometers.
Maximum vertical range: 3-4 kilometers. Effective range is 1.5-2.5 kilometers.
Rate of fire: 500 rounds per minute. Practical rate is 180-250 rounds.

d. Highly Doubtful Antiaircraft Weapons *

(18) 37-mm. Extra-long Gun: Mounted either singly or in threes.

(19) 52-mm. Gun: Extra long tube; has 20-inch bushing or inner liner which is slipped into the breech-end of the tube by hand before the breech-block is screwed on; said to have two

* Note: The information in this paragraph was obtained from very doubtful sources. It was claimed that the antiaircraft weapons mentioned in this paragraph were in manufacture at Kostroma, near Yaroslav.

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mounts - a stand base for fixed installation and a high speed, 3-wheeled mount with the third wheel detachable.

(20) 104-mm. Gun, French Type: Tube about 12 feet long.

(21) 162-mm. Gun: Tube about 5 meters long; mounted on a 4-wheel, high speed carriage with wheels about 4 feet in diameter; said to be fired automatically by electricity with use of a revolving cylinder which holds 9 shells; rate of fire said to be 18 rounds per minute.

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SPECIAL BULLETIN
No. 22
G-2/2657-231

MILITARY INTELLIGENCE DIVISION,
WAR DEPARTMENT,
Washington, October 24, 1940.

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RATIONS IN THE GERMAN ARMY

SOURCE

Part 1 of this bulletin is the translation of an article, "The Modern Ration of the German Armed Forces," which appeared in the Frankfurter Zeitung of August 29, 1940. Special note should be taken of the fact that it was written by Dr. Wilhelm Ziegelmacher, civil government counselor in the Supreme Command of the Army, and its intended propagandistic effect should not be overlooked. In its present version the article is slightly condensed. Part 2 is the translation of a German newspaper account of the German Army food exhibit at Leipzig in August, 1940. Part 3 consists of discussion by an official American observer.

CLASSIFICATION

Page 1 and all of Part 3 are to be considered RESTRICTED. There is no objection to the publication of Parts 1 and 2, actual translations, in service journals.

CONTENTS

NO OBJECTION TO PUBLICATION IN SERVICE JOURNALS

1. "THE MODERN RATION OF THE GERMAN ARMED FORCES"

a. The Importance of Supply

"On May 16th, the German News Agency published the following:

> 'The excellent fighting and marching performances of the German armed forces during the western offensive have again proved that the correct method was followed in adding vitamin concentrations to their daily rations, and thus assisting considerably in the success achieved by preserving their fighting power. A well known foreign university professor and vitamin specialist recently stated that in his opinion the German soldier's ration is the best in the world.'

"It was more than chance for the writer of this paragraph that, while standing amid the chaos of Dunkirk, he found among the mass of clothing, underwear, guns, tanks, motorcars, and all types of vehicles, an urgently telegraphed army order from the London War Office to the English troops fighting in French and Belgian territory. This telegram listed the measures forced upon wealthy England - measures which 'starving Germany' took neither for her field army nor her reserves. The secret order, dated May 5, 1940, stated:

> 'It is of great importance, for economy in shipping, as well as for proper disposition of meat supply, that the Army reduce meat consumption as far as possible but at the same time maintain quality and variety of food. The Army Council requests that all unit commanders carefully consider this matter and limit the quantity of meat consumed.'

"Why were the German armed forces not compelled to resort to such methods? Because, in the end, supply is considered one of the most important of factors of warfare. It is never heeded by historians, although history proves that many failures have been caused by inadequate supply systems. The soldier's food is as important as his ammunition. It cannot be provided through the day's improvisation. Only peacetime preparation and long-range scientific planning can place the maximum power at the Army's command in an emergency. Perhaps the layman will consider this preparation and planning unmilitary, but it can be done only by a soldier, for he alone knows all the requirements and necessities of the armed forces.

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"A modern general and his staff should not be pictured merely working over maps and ordering attacks at decisive hours. An order to attack is the result of an enormous amount of work of all kinds. Much emphasis is placed upon supply, and not a detail dare be forgotten. If hungry soldiers can win victories, it is only with grave difficulty, for war is a contest of all forces - spiritual, military, and industrial. If is not sufficient to mobilize the military strength of a nation. Every detail of supply, including agriculture and industry, must be organized, developed, and supervised with the same energy that extends to military operations."

b. Research and Experimentation

"The problem of feeding the soldier is not only a question of providing and cooking food, nor is it merely one of weights and measures. Production and storage, industrial and technical questions, and packing and supply problems, as well as scientific research and experimentation, are also of great importance. An organization has been established within the German armed forces especially for handling these problems, and this organization is, in itself, nearly as large as an army. We lacked fats, so a synthetic fat was made from coal. We lacked rice, so a similar product was made from potato starch. We were dependent on importation for peas, so Army soups were made with rye as their base.

"During the World War and in the Army of the 100,000 up to 1935, the basic ration consisted of canned meat and sausage, bread, and hardtack, but the last few years have seen the development of many new kinds of foods as the result of the widespread experimentation carried out in this field.

"In planning to provide the supplies necessary for feeding an army at war, research and developing organizations have for years been building up a wealth of scientific and practical knowledge in the fields of economics, technology, medicine, and public health. Army research institutes and Army experimental kitchens determine the supply necessary for the community; special institutes, such as the Army institute for conducting scientific experiments on food, develop new kinds of food, and Army scientific laboratories develop still further the results obtained. If medical questions arise incidentally, they are answered by the research institute of the Military Medical Academy, as well as by the laboratories of the military district experimental stations.

"In addition, the Army administration has urged well known provisions firms to establish societies which, working in

conjunction with the Army, study new methods and later put them to practical use. For example, studies have resulted in the adoption of new methods of handling foodstuffs, including refrigeration for the conservation of foods; of many methods of compressing and pulverizing; of the improved method of cylindrical drying, and of the vacuum drying method.

"Examples of food development in our Army service show that, without systematic research, the proper supply of a modern army is no longer possible. The road to acquirement of this knowledge was a long one. In the beginning, the chief of the Army service of supply, Quartermaster General Privy Councillor Pieszczek, had to fight against many prejudices, and the author had to call upon many authorities to bring about an understanding of the importance of supply. To quote Frederick the Great, however, 'If you want to organize an army, you must begin with the stomach, for that is the foundation.' Again, 'The greatest of projects will end as a mirage if supply is not guaranteed.' Napoleon expressed the same idea when he said 'An army marches on its stomach.' "

c. Training of Field Cooks

"During the last few years, we have constantly stressed the belief that a future war would be a total war, even in the sphere of supply. A great step forward was taken when the Army administration began systematically to indicate the importance of food preparation and when, in 1936, training of field cooks was begun on a large scale. Just as the soldier who does not know how to shoot cannot use the best of ammunition, the field cook, without a knowledge of cookery, cannot prepare food. In July, 1939, the Fuehrer supplied valuable support for this belief while visiting the West Wall with his generals. 'It is important not only that we cook,' he said, 'but that we cook well and with an eye to health, adding these important substances which are necessary to keep the man healthy.'

"A subsequent decree of the Commander-in-Chief of the Army, General Field Marshal von Brauchitsch, stated:

> 'The Army ration has been prepared for. It is sufficient, and its composition is suitable and beneficial. Through the training of field cooks, the establishment cookery instruction, and the publication of the field cook book and related pamphlets, the Army administration has made possible the preparation of good and appetizing food. It is the duty of individual troop units to see that

material received is prepared in such a manner as to obtain best results. The soldier's morale and efficiency are definitely dependent upon this preparation. Therefore, I expect that supply personnel will be carefully selected and trained, and that every officer will see to the physical well-being of his subordinates with tireless zeal and care.' "

d. New Methods and New Foods

(1) The Soy Bean

"The 'soy enthusiasm' was still ridiculed in 1935, and the author was branded as a 'soy monomaniac.' Today it is interesting for him and also for the Frankfurter Zeitung to note that, during the battle in Flanders, the London Times wrote the following in an article on the 'miraculous bean' in the German ration:

'Since the beginning of the war, the press has frequently mentioned the soy bean, chiefly in connection with the German ration. Few of our readers will realize the extent to which Germany uses the soy bean and the extent of its importance in wartime service of supply. It has become vitally important to the Reich from the point of view of food politics as well as from the military point of view. The weakest point in German food economy is the lack of animal food products, for example, meat, milk, and eggs. The Germans have met this deficiency by the development of a soy bean flour called "Edelsoja," which, because of its high protein content, 40-45%, as well as its fat and carbohydrate content, can be used as a substitute for meat and other animal products. This flour is added to dishes such as soups, sauces, bread, pastry, and macaroni in such a way that the flavor remains completely unchanged and each individual receives the balanced daily ration of protein, fat, and mineral salts necessary for human nourishment, without receiving meat.

'Soy bean flour is neither a food substitute nor a nourishment pill, but a new and highly valuable article of food, the nutritive value of which has been attested for centuries by experience in the Orient. We cannot afford to laugh at German attempts to increase soy bean cultivation.

'The military importance of the soy bean lies in its use as an article of food as well as in the fact that war chemicals are produced from it. Soy bean flour and other products are ideal foods for an army, and already they are considered as the iron ration of the German army. These products are not only important as food for men who perform manual labor, but they have also proved an excellent preventive against rheumatism and trench fever. With a supply of soy bean rations, the German Army can march into foreign countries without needing to trouble about its subsistence. German papers, such as the Frankfurter Zeitung, have often openly pointed out this fact. The German soldier can easily carry in his haversack a three-day ration of soy beans, and reserves of this food can be supplied on short notice upon demand. After the Polish Campaign, official National Socialist circles in Berlin admitted quite frankly that without its soy bean ration, the Army could not possibly have made such rapid marches. We assume that the German Surpeme Command learned the value of this article of food during maneuvers and field exercises, and then kept the secret until the Polish Campaign opened.' "

(2) Food in Powder Form

"Cans must be used very sparingly because of the shortness of the tin supply. After preliminary studies had been carried out, the Army administration was able to produce, within a very short time, new foods which could be packed in receptacles other than tin cans. These foods are suitable for military purposes from the supply standpoint. Instead of tomato pulp in tins, there is tomato powder; canned cheese is replaced by powdered cheese, canned applesauce by apple powder, and jam in tin pails by jam powder.

"The layman will undoubtedly understand that powdered food not only facilitates packing, but it also improves the system of supply. When cheese powder is poured into a pail and mixed with cold water, it emerges in a short time as a firm cheese which can be cut as well as Swiss or Tilsiter. The soldier receives for dessert applesauce which was made by mixing apple powder with cold water just before issue. Easy solubility means great saving in transportation."

(3) The Famous Bratling

"As a result of World War experience and after years of preparation, the Supreme Command of the Army developed bratlings from raw materials at hand in Germany, such as animal and vegetable albumin. Bratlings, substitutes for meat protein, are used to balance the diet on meatless days. If properly prepared - for example, in meat balls, cabbage rolls, or chopped-meat dishes - the bratling has the advantage of tasting like meat and satisfying the appetite. It is not difficult for the mess to provide simply prepared bratlings instead of meat.

"Bratling powder is a mixture of soy bean, grain, and milk albumins, spiced with various herbs. Its taste is so nearly neutral that, if added to other dishes with a definite flavor, it does not change their taste. If different condiments are added, entirely new flavors can be developed. The albumin, fat, and carbohydrate content of bratling powder is so nourishing that it has proved far cheaper than other vegetable and animal foods.

(4) Vitamins in the Soldier's Ration

"Increased knowledge has given rise to new questions for those responsible for the soldier's health, especially the question of food quality. Food supplements, such as vitamins are of the utmost importance, and prevention of disease resulting from insufficient vitamins has been given great consideration in specifying the German Army ration.

"Vitamin C, most important for the soldier's ration, is partially destroyed in canning, but canned foods cannot be entirely dispensed with in provisioning the soldier. A mobile army cannot become independent of the home supply base without some canned foods, even for a short time. If these foods are preserved without proper knowledge of canning, there will be a lack of Vitamin C. Canned goods used by the German Army, including the dried vegetables which are of great importance because of their light weight, are carefully tested, and they are rejected if they lack sufficient vitamins. Whenever possible, raw vegetables or fresh herbs are provided. In addition, pure Vitamin C has been developed and used in 'V candies' as an anti-scorbutic acid. To assure a regulated apportionment, 50 mg. of anti-scorbutic acid is twice worked into candies, taffies and the like, with dextrose, fat and whey.

"Vitamin B, as well as all vitamins of the B group, are next in importance. Good Army bread depends upon sufficient use of this vitamin, as in the case of German Kommissbrot and army Knaecke bread.

"Illnesses caused by lack of Vitamin A have never occurred in the German Army. There are sufficiencies of blood sausage, liver sausage, and canned goods with proper Vitamin A content, since certain production methods hermetically seal cans during cooking to assure vitamin preservation.

"Preparation of food in the field kitchen is so regulated as to prevent, as far as possible, the waste of vitamins contained in raw foods. The German Army field cook book is published with this point of view.

(5) Germinating Grain as a Vitamin Container

"It has long been known that germinating grain and its juices have a high vitamin content, and during the last few years the vitamin doctrine has always returned to this question. The Army administration was the first to utilize methods of germination for the development of new kinds of foods. Meat has been made to go farther by the addition of germinating grain--especially to sausage. Albumin and vitamins have been added without recognizable change to ordinary foods. Sausages are stretched during grinding by the addition of artifically germinated soy beans and rye grains."

(6) Concentration, Compression, and Refrigeration

"Last winter showed that maintaining a supply of fresh vegetables can be very difficult. By means of concentration and freezing, we have succeeded in obtaining spinach juice, cabbage juice, and the juices of other vegetables rich in vitamins. These can be made into a dough or paste, and, while requiring minimum space, they can readily be served to troops as spinach noodles, cabbage noodles, etc.

"With the aid of new compression and refrigeration methods, the Army administration, assisted by Army food experts, has produced tomato puree, tomato pulp, and tomato powder from the German tomato. This was previously impossible because the variety of tomato raised in Germany during the short ripening period contained too high a water content. The tomato and its products are tasty, nourishing, beneficial, rich in vitamins, appetizing, and economical in that no waste is involved in their preparation.

"Dried vegetables, such as cabbage, carrots, and spinach, compressed into brick form by means of hydraulic presses, are well known to all who have passed by a field kitchen during this war. But the fact that sauerkraut, dried and compressed into cubes, can now be sent to the kitchens deserves

special mention. Sauerkraut is a very popular item of the Army ration because of its lactic acid content. Its use gives variety to the diet, and it has considerable health-giving properties. It was difficult to develop this vegetable, and the present form, which is not final, was reached only after years of research.

"The introduction of the American Birdseye refrigeration methods in 1939 by the Army administration has produced definite advantages in vitamin preservation, especially in meats, fruits and vegetables. Not only is a saving in tin accomplished by eliminating cans, but foods and vitamins can be kept for years frozen at 35° C. below zero.

"The immense amount of research work done by the chief of the Reichs Institute for Food Preservation is of unusual importance in connection with the practical transport of meat for the Army. Meat is packed already roasted or cooked. Pork hocks and chops are packed in corrugated cardboard boxes, the cartons are compressed to double shoe-box size, and the contents are then frozen gradually. Under favorable transportation conditions, these products will stand journeys of five to six days, even in sunshine, and they can still be kept for years. In addition, a 400% saving in space is made."

(7) Pemmikan

"Concentrated foods play an important role in specialized rations - for example, rations for tank troops, fortress troops, mountain troops, and aviators. One of the best examples of highly concentrated food is Pemmikan, originally used by the American Indian during long migrations. He prepared it from dried game and cranberries. Following our own experiments and those of Nansen, the German Army developed Pemmikan-Landjaeger, which contains all the substances necessary for building up the body, such as carbohydrates, protein, fat,and mineral salts. Pemmikan-Landjaeger contains the following:

Meat, smoked, containing protein (beef and pork);
Bacon, containing fat;
Soy bean flour, containing protein, fat and carbohydrates;
Dried fruits, containing carbohydrates;
Whey, containing minerals;
Tomato pulp, containing vitamins;
Yeast, containing vitamins;
Green pepper, containing vitamins;
Cranberries, containing vitamins;
Lezithin, containing lipoid."

(8) Cream of Tartar

The new cream of tartar contains dextrose, whey, milk, fat, and Vitamin C. This gives a nutritious vitamin concentration, with the peculiarity that its dextrose content is produced from wood sugar. Cream of tartar is well known to every member of the field army under the designation of 'V-drops.' These, with canned mixed foods, played an important part in the ration of our Narvik fighters as well as of the troops in other parts of Norway."

e. Conclusion

"The soldier's food must be good and healthful, for, after all, the fate of the nation depends upon the efficiency of the individual. The ration is supervised by experts, menus are carefully planned, and proper cooking is taught in Army cooking schools at Munich and Frankfurt am Main, as well as in eighteen district cooking schools. Examples show the extent to which scientific experimentation has been carried out to strengthen our military forces. Their success has been proved by the development of this war, victorious up to the present. The Army ration, developed scientifically, has played in these victories a part which should not be underestimated."

2. THE GERMAN ARMY FOOD EXHIBIT AT LEIPZIG

"The total of 80,000 visitors who viewed the Army exhibit called 'Documents of the Polish War,' at the Leipzig Spring Fair of 1940 has already been greatly exceeded by the number to see the Army exhibit entitled 'Victory at the Western Front' at this year's Fall Fair, August 25 to 29, 1940. The German Army offers in this exhibit a disclosing and comprehensive survey of various military spheres. A special exhibit shows statistics on the food supply of the German Western Army.

"According to these statistics, German troops and animals consumed during the course of the great battle in France - presumably including operations in the Netherlands and Belgium, and covering the period from May 10 to June 21, 1940 - 482,000 metric tons of foodstuffs, luxury foodstuffs, and animal feed. These included 93,000 metric tons of flour and ingredients for bread; 13,500 tons of butter, marmalade, and artificial honey; 9,000 tons of coffee substitutes and tea; 170,344 hogs of an average weight of 100 kilograms, providing for 16,500 tons of pork; 11,900 tons of beef; 100,000 tons of fresh vegetables, potatoes, rice, legumes, etc.; 25,800 tons of fresh sausage, meat, sausage preserves, cheese, etc.; 1,400 tons of candy; 24,500 hectoliters of wine; 3,300 hectoliters of liquor; 800 tons of tobacco; 480,000,000 cigarettes; and

180,000,000 cigars.

"If these supplies were transported in a single freight train, it would have a length of 358.5 miles. This would mean 953 German freight trains of average length with 30 cars each, or 22 freight trains daily with a total length of about 6.8 miles each. A large model at the exhibition reveals the immense organization necessary to insure such support and illustrates transportation from Army administration to field kitchen. In addition to railway and other means of transportation, special motor columns of a total of 5,000 trucks were used."

The Leipzig newspaper which published this information concludes that the German Army during the French campaign was the world's largest consumer of foodstuffs and feed. Samples of the supplies, says the same source, made their excellent quality apparent.

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3. DISCUSSION

Improvement in the content and form of rations in the German Army has been for the following reasons:

a. Unavailability of supply in time of war;
b. Conformity to type of operations contemplated;
c. Reduction of administrative labor in field;
d. Increased physical performance of personnel;
e. Decreased amount of transport required;
f. Facilitation of storage.

The German Army has made tremendous advances in subsistence in recent years. Reports emanating from the front indicate that the soldiers are very well fed. As to the quality of the food, the march performances of the troops in Poland and in France are sufficient evidence.

There has been no complaint about the edibility of special types of food. To the contrary, soldiers seem to take them very well. Examination indicates practically no difference between these foods and raw foods cooked in the conventional manner. Flavor has been retained by the adoption of an improved type of steam pressure field kitchen.

The armies which marched through Holland, Belgium, and Luxembourg in May, 1940, were supplied entirely by motor transport until the end of the first phase at Dunkirk - that is, from May 10 to June 4. It is estimated that there were at least 2,000,000 men, or 100 divisions of 20,000 men each, who had to be fed during these operations. One can readily realize that this problem was greatly facilitated by using foods which were concentrated, dried, or designed to supplement those foods found in the occupied territory.

The amount of labor saved by the use of pre-prepared foods in a force of the size involved in these vast operations is considerable. The saving of personnel can be used to increase the combat power of the units involved.

Foods of the type described in the enclosed translated article can be prepared in much less time than raw foods. Under campaign conditions, especially in a war of movement, the messing of the troops is greatly facilitated by a decrease in time required for food preparation.

Use of this type of subsistence explains how motorized and mechanized units could be - and were - supplied entirely

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[redacted]

by airplane when they were out of contact with normal sources of supply, and explanation of the supply of isolated garrisons in the Norwegian Campaign is also more apparent.

There have been reports of the use of concentrated foods and nutrition tablets in the German Army since the Polish Campaign. It is possible that these reports are ungrounded and that the success of subsistence in the German Army is due to a superior ration and a perfected system of preparation and supply.

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SPECIAL BULLETIN
No. 23
G-2/2657-231

MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT
Washington, October 24, 1940.

NOTICE

The information contained in this series of bulletins will be restricted to items from official sources which are reasonably confirmed.

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23

CHARACTERISTICS OF SOVIET TANKS AND ARMORED CARS

SOURCE

The information contained in this bulletin is based primarily upon the reports of official American observers and secondarily upon handbooks and other publications concerning the Red Army.

NOTE

Specifications marked (?) are doubtful.

CONTENTS

* * * * *

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1. TANKS

a. T-27, A&B (Vickers-Carden-Loyd)

Type: Tankette.
Crew: Two.
Armament: Two front 7.62-mm. machine guns.
Ammunition: 3,000 rounds.
Armor thickness:
  Upper structure: .16 inches.
  Front: .24 inches
  Sides: .39 inches.
Turret: One.
Dimensions:
  Length: 8 feet, 1 inch.
  Width: 5 feet, 8 inches.
  Height: 4 feet.
Weight: 1.7 - 2.7 tons.
Motor: Ford or Chevrolet.
  Type: 4-cylinder.
  Horsepower: 25-60 (?).
    Horsepower per ton, 14.7 or 9.3 (35.3 or 22.2 ?).
Speed:
  Cross-country: 7 mph.
  Road: 10-15 mph.
  Maximum 25-30 mph.
Cruising radius: At road (?) speed, 70-100 miles.
Performance:
  Climbs 30-45° slopes.
  Negotiates vertical obstacle 16 inches high.
  Crosses trenches 5 feet, 10 inches wide.
  Fords streams 20 inches deep.
Remarks: The main difference between the T-27A and the T-27B is that the top of the latter is not level, the turret on the left being higher than the top of the space occupied by the operator on the right.

b. T-37 (Vickers-Carden-Loyd)

Type: Amphibian Tank.
Crew: Two.
Armament: One 7.62-mm. machine gun.
Ammunition: 3,000 rounds.
Armor thickness:
  Upper structure: .275 inches.
  Sides: .315 inches.
  (The T-37 and the T-38 are said to have .7 inches.)

[redacted]

[redacted]

Turret: One.
Dimensions:
  Length: 14 feet, 2 inches.
  Width: 6 feet, 11 inches.
  Height: 6 feet, 5 inches.
Weight: 3-5 tons (?).
Motor:
  Type: Meadow VI or Ford V.
  Horsepower: 56.
    Horsepower per ton: 18 - 11.2 (?).
Speed:
  Cross-country: 2.5 - 6 mph.
  Maximum: 30-37 mph.
Cruising radius: At road (?) speed 60-150 miles.
Performance:
  Climbs 45° slopes in water, 15° slopes out of water.
  Negotiates vertical obstacles 1 foot, 7 inches high.
  Crosses trenches 5 feet, 6 inches wide.
Remarks: The Red Army has at least the following types of small amphibian tanks: MT Morskoi 33 (56 hp.); T-37 Carden-Loyd, and T-38 Carden-Loyd (40-60 hp.).

c. T-26, A&B (Vickers MA/30; Vickers MA/31)

Type: Light Tank.
Crew: Three.
Armament: A. Two 7.62-mm. machine guns;
  B. One 7.62-mm. machine gun and one 45-mm. gun.
Ammunition: A. 6,000 rounds for machine guns;
  B. 4,000 for machine guns, and 50 for gun.
Armor thickness:

Upper structure:	A.	.19 inches;	B.	.23 inches.
Front:	A.	.31 inches;	B.	.39 inches.
Sides:	A.	.51 inches;	B.	.55 inches.

Turret: A has two; B has one.
Communications: Radio on leading tanks.
Dimensions:
  Length: 16 feet.
  Width: 7 feet, 11 inches.
  Height: 8 feet.
Weight: 7 - 8½ tons.
Motor: Armstrong-Siddeley IV.
  Horsepower: 88.
    Horsepower per ton: 12.6 or 10.4.
Speed:
  Cross-country: 10-12 mph.
  Road: 12 mph.
  Maximum: 22-25 mph.

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Cruising radius: At road (?) speed 100 miles.
Performance:
Climbs 45° slopes.
Negotiates vertical obstacle 2 feet, 5 inches high.
Crosses trenches 5 feet, 9 inches wide.
Fords streams 3 feet deep.
Remarks: T-26A, sometimes has one 7.63-mm. and one 12.7-mm. machine guns instead of two 7.63-mm. machine guns.

d. BT (Christie) M/31. (BT-M/A, BT-M/B, BT-M/C, BT-M/D)

Type: Light tank.
Date: 1934.
Crew: Two or three.
Armament: One 37-mm. or 45-mm. gun, or more rarely one short 76-mm. gun; one or two 7.62 machine guns. *
Ammunition: 92 shells (37-mm. or 45-mm.) and 2700 rounds of machine gun ammunition.
Armor thickness:
Upper structure: .24 inches.
Front: .5 - .62 inches.
Sides: .39 inches.
Turret: One.
Dimensions:
Length: 19 feet.
Width: 7 feet, 1 inch.
Height: 7 feet, 7 inches.
Weight: 10-11 tons.
Motor: M-34 (Hispano-Suiza XII ?).
Type: V-12.
Horsepower: 350 (500 ?).
Horsepower per ton: 35 or 31.8 (50 or 45.4 ?).
Speed:
Cross-country: 37 mph.
Road: 15-25 mph.
Maximum: 45 mph. with tracks; 65 mph. on wheels.
Cruising radius: At road (?) speed 150-250 miles.
Performance:
Climbs 40° slopes.
Negotiates vertical obstacle 29 inches high.
Crosses trenches 6 feet, 11 inches wide.
Fords streams 39 inches deep.

* The BT-M/D is reported to have one short 76-mm. gun and two machine guns.

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e. T-28 (M-1). (Vickers-Armstrong/29)

Type: Heavy tank.
Crew: Six to eight.
Armament: One 76-mm. gun and three or four 7.62-mm. machine guns, one of which is a light machine gun.
Ammunition: 60-70 shells for 76-mm. and 8,000 rounds of machine gun ammunition.
Armor thickness:
Upper structure: .39 inches.
Front: .98 inches.
Sides: 1.37 inches.
Turret: One large, two small.
Dimensions:
Length: 23 feet, 8 inches - 24 feet, 2 inches.
Width: 9 feet - 9 feet, 5 inches.
Height: 8 feet, 7 inches - 9 feet, 7 inches.
Weight: 25-33 tons.
Motor:
Type: Armstrong-Siddeley, XII/V.
Horsepower: 450.
Horsepower per ton: 18 - 13.6.
Speed:
Cross-country: 6-10 mph.
Road: 18-23 mph.
Maximum: 25 mph.
Cruising radius: At road (?) speed 60-125 miles.
Performance:
Climbs 45° slopes.
Negotiates vertical obstacle 31 inches high.
Crosses trenches 6 feet, 7 inches wide.
Fords streams 4 feet deep.
Remarks: This tank is a copy of the 16-ton British Vickers-Armstrong. Some models may have the Soviet M-34 motor or the V-12 cylinder type.

f. T-35 (M-II Vickers)

Type: Heavy tank.
Crew: 10-12.
Armament: One 76-mm. gun, two 37-mm. or 45-mm. guns, and two or three machine guns. *

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* One report states that the "Vickers-Independent M/I and II" has an armament of one 76-mm. gun, two 37-mm. or 45-mm. guns, and two to six machine guns.

[redacted]

Armor thickness:
  Upper structure: .98 inches.
  Front: 1.37 inches.
  Sides: .98 inches.
Turret: Four.
Dimensions:
  Length: 30 feet, 6 inches.
  Width: 10 feet, 6 inches.
  Height: 9 feet, 1 inch.
Weight: About 33 tons.
Motor:
  Type: Armstrong-Siddeley XII/V.
  Horsepower: 350-500.
    Horsepower per ton: 10.6 or 15.1.
Speed:
  Road: 7 mph.
  Maximum: 16-20 mph.
Cruising radius: At road (?) speed 185 miles
Performance:
  Climbs 40° slopes.
  Negotiates vertical obstacle 40 inches high.
  Crosses trenches 15 feet wide.
  Fords streams 4 feet deep.

2. ARMORED CARS

a. BA Bronieford

Type: Light Armored Car of Soviet Design.
Crew: Three.
Armament: One machine gun in turret, one machine pistol.
Armor thickness:
  Upper structure: .35 inches.
  Front: .35 inches.
  Sides: .35 inches.
Turret: One.
Dimensions:
  Length: 12 feet, 2 inches.
  Width: 5 feet, 7 inches.
  Height: 6 feet, 4 inches.
Weight: 3.2 tons.
Motor:
  Type: Ford.
  Cooling system: Water.
  Horsepower: 50.
    Horsepower per ton: 15.6
Speed:
  Cross-country: None.
  Maximum: 45 mph.
Cruising radius: At road (?) speed 160 miles.

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Ground clearance: 8.5 inches.
Remarks: Without turret and machine gun, this car weighs 2.1 tons and has a maximum speed of 53 mph.

b. BA-27

Type: Armored car.
Crew: Four.
Armament: One 37-mm. gun and one 7.62-mm. (.30 cal) machine gun in revolving turret.
Armor thickness: .24 - .51 inches.
Turret: One, revolving.
Communications: Radio in some cars.
Dimensions:
  Length: 14 feet, 9 inches.
  Width: 5 feet, 11 inches.
  Height: 8 feet, 1 inch.
Weight: 4.5 tons.
Motor:
  Cooling system: Water.
  Horsepower: 40.
    Horsepower per ton: 8.9.
Speed:
  Cross-country: None.
  Maximum: 28.
Cruising radius: At road (?) speed 125-190 miles.
Fords streams 19.7 inches deep.
Remarks: Obsolescent type, which is being gradually replaced with more modern types. Not used in Finnish War as far as known.

c. Ford Six Wheel Armored Car, Modelled on British Lancaster

Type: 3-axle armored car.
Crew: Four.
Armament: One 37-mm. gun and one machine gun in turret; one machine gun beside driver.
Armor thickness: Averages .43 to .55 inches.
Turret: One.
Dimensions:
  Length: 16 feet, 2 inches.
  Width: 6 feet, 3 inches.
  Height: 8 feet, 0 inches.
Weight: 7 tons.
Motor:
  Type: Ford (?).
  Horsepower: 85.
    Horsepower per ton: 12.1.

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Speed:
Cross-country: Unknown; believed fair.
Maximum: 43 mph.
Cruising radius: At road (?) speed 150 miles.
Ground clearance: 10.4 inches.
Remarks: Six wheels with pneumatic tires; four rear wheels have dual tires and can be fitted with tracks.

d. BA Ford Amphibian Armored Car (6 wheel)

Type: Armored car.
Crew: Four.
Armament: One 37-mm. gun and two machine guns (7.62-mm. or .30 cal).
Armor thickness: .43 - .55 inches.
Turret: One revolving turret in rear; 2 rigis front turrets.
Dimensions:
Length: 17 feet, 3 inches.
Width: 6 feet, 9 inches.
Height: 7 feet, 9 inches.
Weight: 9 tons.
Motor:
Type: Ford (?).
Cooling system: Water.
Horsepower: 85.
Horsepower per ton: 9.4.
Maximum speed: 40 mph.
Cruising radius: At road (?) speed 125-190 miles.
Ground clearance: 10 inches.
Remarks: Used in Finnish War. Machine gun turret revolves 270 degrees. Six cutout disc wheels with pneumatic tires. Drive: both rear axles.

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SPECIAL BULLETIN
No. 24
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MILITARY INTELLIGENCE DIVISION,
WAR DEPARTMENT,
Washington, October 29, 1940.

NOTICE

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24

SOVIET INFANTRY EQUIPMENT

SOURCE

The information contained in this bulletin is based primarily upon the reports of official American observers and secondarily upon handbooks and other publications concerning the Red Army. Obsolete or obsolescent materiel which is no longer in general use or which is being replaced is not included in this study.

NOTE

Characteristics marked (?) are doubtful.

CONTENTS

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1. INTRODUCTION

According to Eastern European standards, the Red Army is satisfactorily uniformed and equipped. Picked units usually make an excellent appearance at reviews, although the general appearance of troops which entered Estonia in October, 1939, was not good.

While much of the Red Army's materiel is obsolescent, or even obsolete, most of that used during the Finnish War was satisfactory, and some of it was modern.

It is believed that the Soviet Union has on hand sufficient materiel for an army of four or five million men. Most of the modern weapons have been copied from foreign prototypes, usually through purchase of patent rights. Because of inefficiency in manufacture, however, copies have not usually been as well constructed as the originals upon which they were based. Care of equipment, while not up to American standards, is satisfactory.

The Red Army is strongly committed to a policy of modernization of equipment and materiel, especially as regards motorization and mechanization. It does not cling tenaciously to old materiel for sentimental reasons. The fact that horsed units are still very numerous is due to poor roads in many parts of the country and to the belief that such units are still useful under certain conditions.

2. INDIVIDUAL INFANTRY EQUIPMENT OTHER THAN WEAPONS

The individual infantryman formerly carried a load of 27.6 kilograms (60.7 pounds), but this is reduced to 18,5 kilograms (40.7 pounds) when the pack is carried in the field train. The Soviet press has announced the adoption of a new aluminum canteen, a new flexible cartridge box, a waterproof poncho which can be used as a shelter tent, and a new knapsack with a wood frame and with straps for attaching the overcoat. It is said that the knapsack has already been issued to some troops.

Individual anti-gas equipment consists of a Selinski-Kummant M/TT-4 or M/TT-5 gas mask, a coat for protection against yperite, and a first-aid packet containing other materials necessary for protection against yperite.

Ski battalions usually have better equipment than other troops. They have white padded caps, padded trousers, felt and leather boots, knitted woolen helmets, winter caps, white capes

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which can be fastened about the neck,* woolen and leather gloves, flannel underwear, skis,* and gas masks.

3. COMMON INFANTRY WEAPONS

a. Rifle **

Mossim-Nagaut, 91/30

Caliber: 7.62 mm.
Weight: 4.5 kilograms, with bayonet.
Method of feeding: Magazine.
Number of rounds: Five.
Rate of Fire: 10-12 rounds per minute.
Effective Range: 2000 meters.
Maximum range: 2000-2750 meters.
Muzzle velocity: 880 meters per second.
Length: 1.23 meters.
Sight: Telescopic.
Remarks: Reported used in Finnish War.

b. Semi-Automatic Rifle.

Remarks: Details unknown; fires 15 rounds from clip inserted in breech chamber; reported used in Finnish War; according to a Red officer, the day of fire for a semi-automatic is 2000 rounds (1500 with weapon and 500 in regimental train).

c. Carbine, 1910

Caliber: 7.62 mm.
Weight: 3.3 kilograms.
Method of feeding: Magazine.
Effective range: 2000 meters.
Muzzle velocity: 800 meters per second.
Length: 1.01 meters.

d. Pistols

(1) Tokarev (TT) Automatic, 1933

Caliber: 7.62 mm.

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* In Finland not all ski troops had skis or white capes.
** At Petsamo the Reds had, in addition to the ordinary rifles, a rifle with a telescopic sight manufactured in 1937.

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Weight: 0.825 kilograms.
Muzzle velocity: 420 meters per second.

(2) Machine Pistol (Sub-Machine Gun)

Remarks: Details unknown, but said to be similar to Finnish Suomi machine pistol; used in Finnish War.

e. Machine Guns *

(1) Degtyarev (DP) Light Machine Gun

Caliber: 7.62 mm.
Mount: Bipod.
Weight: 8.4 kilograms without mount. 9.4 kilograms with mount.
Method of feeding: Drum.
Number of rounds: 47 (49?)
Rate of fire: Effective, 100-150 rounds per minute. Maximum, 600 rounds per minute.
Effective range: 1300-2750 meters.
Maximum range: 4500 meters.
Muzzle velocity: 880 meters per second.
Remarks: Gas operated; air cooled; fixed barrel with gas port; reported used in Finnish War.

(2) Maxim-Tokarev Light Machine Gun

Caliber: 7.62 mm.
Mount: Bipod.
Weight: 13 kilograms.
Method of feeding: Belt.
Number of rounds: 100.
Rate of fire: Effective, 100-150 rounds per minute. Maximu, 500 rounds per minute.
Effective range: 2750 meters (direct, 1500 meters; indirect, 4000 meters. ?)
Muzzle velocity: 880 meters per second.
Remarks: Recoil operated; water cooled; reported used in Finnish War.

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* At Petsamo the Reds had a quick-firing rifle with a drum of 47 rounds, as well as machine guns mounted on wheels, manufactured in 1937-1938. According to a Red Officer, the day of fire for a machine gun is 4000 rounds (3000 with weapon and 1000 in train).

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(3) Maxim Heavy Machine Gun, 1909-1910 *

Caliber: 7.62 mm.
Mount: Carriage (Sokolov).
Weight: 60 kilograms with mount. 18 kilograms without mount.
Method of feeding: Belt.
Number of rounds: 250-300.
Rate of fire: 250-500 rounds per minute.
Effective range: 2750 meters.
Maximum range: 5000 meters.
Muzzle velocity: 860-880 meters per second.
Remarks: Recoil operated, water cooled. Reported used in Finnish war.

(4) Maxim Antiaircraft Machine Gun

Caliber: 7.62 mm.
Mount: Tripod.
Weight: 80 kilograms with mount.
Method of feeding: Belt.
Number of rounds: 250-300.
Rate of fire: 250-500 rounds per minute.
Effective range: 2750 meters.
Muzzle velocity: 880 meters per second.
Remarks: May be mounted in groups of three or four. Reported used in Finnish War.

f. Rifle Grenade Projector

Dyakanov Projector

Caliber: 40.6 mm.
Mount: Bipod.
Weight: 8.2 kilograms.
Rate of fire: 5-6 rounds per minute.
Effective range: 150-800 meters.
Muzzle velocity: 54-100 meters per second.

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* A Soviet poster, 1940, announces two models of this machine gun, the 1908 and the 1930. Each is said to have the following characteristics: weight of body, 20.4 kilograms; weight of frame, 33.5 kilograms; weight of shield, 8 kilograms; diameter of wheel, 55 centimeters. In addition, the 1908 is said to have a muzzle velocity of 860 meters per second and the weight of its belt, with cartridges, is said to be 9.8 kilograms. Muzzle velocity of the 1930 is listed at 800 meters per second and weight of belt with cartridges at 10.325 kilograms.

[redacted]

[redacted]

Radius of burst: 10-30 meters.
Remarks: Reported used in Finnish War.

g. Hand Grenade

Dyakanov, Model 1933

Remarks: Close action type weighs 500 grams and has a range of about 45 meters; the distant action type weighs 600 grams and has a range of about 40 meters.

h. Rifle Grenade

Dyakanov, Model 1930

Remarks: Has a range of 850 meters; reported used in Finnish War with both bime and percussion fuzes.

i. Bayonets

(1) Blade Bayonet

Remarks: Six or seven inches long.

(2) French Type Bayonet

Remarks: Triangular cross section; about 18 inches long; predominated in Finnish War in ratio of five to one.

4. INFANTRY CANNON

a. 37-mm.

(1) 37-mm. Bofors Antitank Gun

Length: 45 calibers.
Muzzle velocity: 500 meters per second.
Weight of projectile: 0.66 kilograms.
Weight in firing position: 310 kilograms.
Range: 4.5-6 kilometers.*
Elevation: -10 to + 25 degrees.*
Traverse: 50 degrees.*
Rate of fire: 20 rounds per minute.

* These characteristics from Bofors catalogue. They pertain to the 37-mm. gun from which this gun was apparently copied.

 [redacted]

[redacted]

Radius of burst (destructive): 5 x 10 meters.
Trail: Split.
Remarks: Reported used in Finnish War.

(2) 37-mm. Antitank Gun, Model 1926

Length: 45 calibers.
Muzzle velocity: 300 meters per second.
Weight of projectile: 0.655 kilograms.
Weight in firing position: 313 kilograms.
Range: 8 kilometers.
Rate of fire: 12 rounds per minute.
Remarks: Probably no longer in use.

(3) 37-mm. Rheinmettal Antitank Gun, 1930

Muzzle velocity: 800 meters per second.
Weight of projectile: 0.66 kilograms.
Weight in firing position: 313 kilograms.
Range: 7 kilometers.
Remarks: Probably no longer in use.

b. 45-mm. *

(1) 45-mm. ZIK-5 Antitank Gun, 1932

Muzzle velocity: 760 meters per second.
Weight of projectile: 1.14 kilograms.
Weight in firing position: 3.89 kilograms.
Range: 6.5 kilograms.
Remarks: It is possible that there are one or two models of this gun.

(2) 45-mm. Antitank Gun, Designation Unknown

Muzzle velocity: 600-800 meters per second.
Weight of projectile: 1.5 kilograms
Rate of fire: 20 rounds per minute.
Radius of burst (destructive): 10 x 12 meters.
Remarks: Reported used in Finnish War.

(3) 45-mm. Semi-Automatic Antitank Gun, Model 1936-1938

Length: 45 calibers.

* During the Finnish War, a Red Officer stated that the day of fire for a 45-mm. antitank gun was 600 rounds, and that armor piercing, fragmentation, and sometimes case shot projectiles were used.

[redacted]

[redacted]

Range: 4 kilometers.
Trail: Split.

(4) 45-mm. Battalion Howitzer, 1929

Length: 25 calibers.
Muzzle velocity: 600 meters per second.
Weight of projectile: 1.15 kilograms.
Weight in firing position: 240 kilograms.
Remarks: Old model; no recent information, although new experimental model reported.

c. Trench Mortars

(1) 81-mm. Stokes-Brandt Trench Mortar

Length: 15 calibers.
Muzzle velocity: 300 meters per second.
Weight of projectile: 3.25 kilograms.
Weight in firing position: 58.6 kilograms.
Range: 3 kilometers.

(2) 82-mm. Soviet Trench Mortar

Muzzle velocity: 202 meters per second.
Weight of projectile: 3.2-6.5 kilograms.
Weight in firing position: 57.7 kilograms.
Range: 3.5 kilometers.
Rate of fire: 19-30 rounds per minute.
Mount: Tripod.
Remarks: Existence of this weapon is doubtful.

5. INFANTRY BRIDGE EQUIPAGE

An Infantry regiment is usually equipped with 32 TZ1 semi-unsinkable rubberized floats filled with kapok, etc., and 16 stringers. With this material a light bridge about 60 meters in length can be constructed.

A raft made of four floats can carry a load of 1000 kilograms, or a machine gun section. Regiments also have Polyanski rubberized floats, which weigh two kilograms and can carry a load of 50 kilograms each. The floats are transported in four wagons or two 1½-ton trucks.

 [redacted]

SPECIAL BULLETIN
No. 25
G-2/2657-231

MILITARY INTELLIGENCE DIVISION,
WAR DEPARTMENT,
Washington, October 31, 1940.

NOTICE

The information contained in this series of bulletins will be restricted to items from official sources which are reasonably confirmed.

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THE SOVIET INFANTRY DIVISION

SOURCE

This bulletin contains information furnished by official American observers in January, 1940, and should be considered in connection with SPECIAL BULLETINS No. 21, 23 and 24, all of which are concerned with Soviet equipment. The observers make the following statement: "Although exact figures are given, it must be understood that they are. . . . the result of approximate calculations. . . . Lists. . . . are believed to be substantially correct."

CONTENTS

* * * * *

[redacted]

1. THE REGULAR INFANTRY DIVISION.

a. Before the World War, regular divisions stationed during peace time on the frontier were usually kept at 80% to 90% of war strength, while those in the interior, depending upon their location, were kept at 40% to 60% of their war strength.

b. In March, 1939, Marshal Voroshilov stated that the war strength of the Infantry division had been raised, including all ranks, from 13,000 to 18,000. Principal increases were made in the Artillery, machine gun units, and the number of riflemen in the Infantry platoon.

c. During the Finnish War, the organization of the division varied with its mission and with the part of the front which it occupied. It is said that a division north of Lake Ladoga had one Infantry regiment and ten ski battalions, while other divisions had from one to five Infantry regiments. Although it is believed that in peace time regiments usually were assigned permanently to their respective divisions, certain Infantry regiments were identified in different divisions on separate occasions. This was perhaps only a war time expedient.

Division artillery in some cases was non-existent, while in others it ran as high as five regiments. North of Lake Ladoga, divisions usually had less artillery and a lower degree of mechanization than those on the Karelian Isthmus.

In January, 1940, the theoretical strength of the Infantry divisions was reliably estimated at 16,729 men while the actual strength was believed to vary from 10,000 to 20,000. Average strength was set at 14,000 to 15,000. Theoretical strength is shown in the accompanying table, although it is probable that few divisions have all the men and materiel listed.

Definite information as to the number of Infantry divisions in existence is not available, but reliable sources have reported as follows: *

July, 1939	114
January, 1940. . .	121-149
(Including 30 new Divisions)	
April, 1940. . . .	161 (?)
May, 1940.	142-148
July, 1940	150
August, 1940 . . .	164
October, 1940. . .	165
(Believed substantially correct)	

* It is not known whether Reserve divisions are included in these figures.

[redacted]

THEORETICAL STRENGTH OF SOVIET INFANTRY DIVISION, JANUARY, 1940

Units	Div. Hq.	3 Inf. Regts.	FA Regt.	Rec. Bn.	Tk. Bn.	Pion. Bn.	Sig. Bn.	AT Co.	AA MG Co.	Chem. Co.	Av. Det.	Supply Units	Total
Personnel	120	9,477	1,740	511	192	389	285	48	52	185	30	3,700	16,729
Horses	20	1.983	1,245	345		73	42			34		3,300	7,042
Rifles, 7.62-mm.		7,173	1.420	305		288	237	18	18	155			9,614
Rifles with Grenade Throwers		333		12									345
Light Automatic Rifles *		333	18	14		2				5			372
Heavy MG's		162		4									166
AT Guns, 37-mm. or 45-mm.		30		2				4					36
Mortars, 81-mm.		18											18
Field Guns, Short, 76-mm.		18		4									22
AA MG's		9	3		3				6				21
Light Field Guns, 76-mm.			20										20
Howitzers, 122-mm.			16										16
Gas Throwers										7			7
Armored Cars				10									10
Tankettes				2	3			4					9
Amphibious Tanks					7								7
Light Tanks					37								37
Gas Tanks										5			5
Vehicles, Horse-drawn		828	166	4		64	36			17		1,500	2,615
Ammunition Wagons		54	84										138
Cars, Passenger	3	6	2						1	1	1	3	17
Trucks		9	7	8	49**	30		1	7	10	1	20	142
Airplanes											3		3

* Probably includes automatic rifles and semi-automatic shoulder rifles.

** Includes 5 service trucks.

2. THE RESERVE INFANTRY DIVISION

In April, 1938, it was reported that 80 of the 90 regular divisions then in existence could furnish cadres to serve as nuclei for Reserve divisions, and that additional personnel could be drawn from the immense reserve of partially trained manpower. Arms and equipment were said to be available for 80 Reserve divisions. Estimates indicated that the first echelon of mobilization, consisting of 170 to 180 divisions, could be in the field by the end of the third month after initial mobilization. The present figure of 165 probably includes many Reserve divisions.

3. NATIONALIZATION OF UNITS

Marshal Voroshilov announced in March, 1939, that the existence of separate national military units, permanently tied to their own territory, was contrary to the principles of the "Stalin Constitution", as well as to the extra-territorial principles of the Red Army. Consequently, these units have been merged with Russian units.

This policy appears an attempt to Russify the population, and many believe it will fail to produce appreciable results because of the pronounced national self-consciousness of the minorities, especially the Ukrainians. Since many of the non-Slavic nationals do not understand Russian, it is probable that they will continue to form separate units in larger Russian elements.

* * * * *

[redacted] for the maps See Document Accession no. 6506

SPECIAL BULLETIN
No. 26
G-2/2657-231

MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT
Washington, November 5, 1940

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ATTEMPT TO CAPTURE THE HAGUE BY THE 22d GERMAN DIVISION, AIR INFANTRY

(A Continuation of Special Bulletin No. 9)

SOURCE

The documents here reproduced became available to the Military Intelligence Division after unsuccessful air infantry attacks upon The Hague.

In order that exact ideas may be preserved, the documents presented in this bulletin are verbatim translations, unedited and unrevised.

CONTENTS

[redacted]

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1. INTRODUCTION

SPECIAL BULLETIN No. 9 of this series contained twelve captured German intelligence documents revealing information upon which were based the plans of the 22d Division for the capture of The Hague by parachute troops and air infantry. The current bulletin contains fifteen additional documents, numbered 13-27, on the same subject and bears the same title as its predecessor. They are of high significance because of the light they throw upon the German Intelligence Service. They bring out clearly the minute details considered essential by that service in preparation for an operation and establish the intimate connection of the Intelligence Service with Fifth Column activities. The documents should be studied in connection with SPECIAL BULLETIN No. 10, Major Military Operations in the German Invasion of Holland, as well as with the bulletin of which they are a continuation.

An effort has been made to arrange the documents in chronological order, but without success. This lack of orderliness should not be interpreted as positive proof that German intelligence sections do not keep records similar to our own G-2 Journal. It is possible that other intelligence documents of the series were destroyed.

[redacted]

2. ANALYSIS OF DOCUMENTS

No. of Document	Date of Document	Origin of Document	Known Distribution of Information Contained in Document	Nature of Contents of Document	Remarks
13	Unknown but observations reported cover the period April 7 to May 9,1940.	Secret agents probably working under the German Army.	22d Division	Reports of secret agents. (One reported "not yet tested." Under dates of April 7, 24, and 26, and May 1 and 9 (?) 1940, much detailed information of the Dutch Army is given.	It cannot be determined whether this information was furnished the 22d Division when first secured or just before the jump-off, but it is believed that it was furnished as received.
14	April 15	German Military Attache, The Hague.	Aviation Command Staff, Aviation Division F and 22d Division.	Detailed report on certain dispositions of the Dutch Army in and near The Hague made on April 13 and 14, 1940, probably by the military attache or his representative.	This is a transcript of the military attache report furnished headquarters, field forces, and redistributed.
15	April 18, 1940, covering observations from April 11 to 14, 1940.	German Air Attache, The Hague.	Aviation Command Staff and 22d Division.	This report covers minute details of certain dispositions of the Dutch Army in The Hague area and the routine of night maneuvers. It was probably based	This is a transcript of information furnished the Aviation Command Staff.

[redacted]

No. of Document	Date of Document	Origin of Document	Known Distribution of Information Contained in Document	Nature of Contents of Document	Remarks
15 (cont'd)				upon the Air Attache's observations or those of his agents.	
16	Not dated.	Not shown, but probably based on information furnished by secret agents.	22d Division Feldman Operations Group I.	A list of persons in Holland to be seized and a list of garages where automobile transportation can be requisitioned.	The Roman numerals opposite the list of garages correspond to the designations of the 3 landing areas, and may indicate assignment of garages to the task forces.
17	Not dated.	22d Division.	Detachment Ia, 22d Reconnaissance Detachment, 22d Artillery Regiment, and 22d Armored Infantry.	Dissemination to subordinate units of certain information of Dutch Army dispositions in and near The Hague.	A summary of enemy information for troop units.
18	April 16, 1940.	From military attache reports and secret agents.	7th Aviation Division and 22d Division.	Gives names and addresses of many high Dutch military officials.	
19	Not dated.	Not shown.	22d Division.	Gives a more detailed explanation of certain points shown on a city map of The Hague, in-	A city map of The Hague (Uitgave Cito Plans et Guides 23, scale, 1:17,500) was among the docu-

[redacted]

[redacted]

No. of Document	Date of Document	Origin of Document	Known Distribution of Information Contained in Document	Nature of Contents of Document	Remarks
19 (cont'd)				cluding certain troop dispositions.	ments, but has not been reproduced.
20	Not dated.	Not shown.	22d Division.	Gives certain minute details of possible landing areas, based on observations made subsequent to April 7, 1940.	City map of The Hague (Uitgave Cito Plans et Guides 7, scale 1:12,500) was among original documents, but has not been reproduced.
21	April 17, 1940.	GHQ of the Army.	General Staff Army of the West and 22d Division.	Report on location of small troop units in the Netherlands.	
22	April 18, 1940.	Commander-in-Chief of the Air Arm.	Aviation Division, 7th Air Fleet, Hq. 2, and 22d Division.	Detailed information on the location of certain troop units in the Netherlands.	Probably furnished the 22d Division for its information.
23	April 18, 1940.	7th Aviation Division.	7th Aviation Division and 22d Division.	Detailed information on the location of certain troop units.	
24	April 22, 1940.	Hq. Army of the West.	22d Division.	This is an excellent G-2 report covering the Dutch defensive position before the out-	The source of this information is not known, but it is undoubtedly based on information from many sources.

[redacted]

[redacted]

No. of Document	Date of Document	Origin of Document	Known Distribution of Information Contained in Document	Nature of Contents of Document	Remarks
24 (cont'd)				break of hostilities.	The document was probably furnished the 22d Division for its information.
25	May 8, 1940.	7th Aviation Group	22d Division	Gives certain detailed information of activities in Holland for the period May 3 to 8, 1940.	
26	May 9, 1940.	Air Attache, The Hague.	7th Aviation Group and 22d Division.	Gives certain defensive and precautionary measures in Holland as of April 10,1940, and transmits unverified reports of secret agents on military activities in England.	
27	Not dated.	Not shown.	22d Division.	A brief summary of information concerning defensive measures taken by Holland	The information contained in this document is quite similar to that which would appear in Paragraph 1 of our own field orders.

This analysis shows clearly that the source of nearly all known information upon which plans for the operations of the 22d Division were based was secured by secret agents operating in Holland or by military personnel accredited to that country. It is interesting to know that there were about 250 accredited diplomatic, consular, military and clerical representatives at the German Legation at The

[redacted]

[redacted]

Hague when operations were initiated, on the morning of May 10, 1940, without a declaration of war.

The analysis also shows the important part played by the military or the air attache at The Hague, either as the director of espionage operations or as the point of contact for secret agents operating under another directing head.

The lessons to be drawn from a study of these intelligence documents are as follows:

a. The minute and detailed information of the terrain and enemy dispositions must be available if parachute troops and air infantry are to operate with any chance of success.

b. An accredited attache of the German government residing in a foreign country should be regarded as a potential clearing center, if not the direct operator, of an espionage service.

c. Security precautions are desirable even though they cannot be depended upon to deny all information of our own activities. In this connection, it is to be noted that no manuals, handbooks, or other material regarding the German Intelligence Service were compromised by the 22d Division in its unsuccessful attack on The Hague.

d. Effective counterintelligence measures against the German Intelligence Service must include avoidance of routine measures in the scheme of defense. Positive action must be taken to prevent either passive or active defensive measures from becoming fixed.

[redacted]

3. DOCUMENTS 13-27 RELATING TO ATTEMPT TO CAPTURE THE HAGUE

a. Document No. 13

Ic. For 22d Div. Ia No. 386/40 Secret material

A new intermediary under trial reports:

Time of observation: April 7, 1940.

Known* In Kijkduin,[1] in the school, is quartered ½ - 1 company of depot[2] battalion infantrymen.

Known* In the school in Monster and in private quarters are quartered other parts of the infantry depot battalion.

Known* In Ter Heide there is only a small guard in 2 barracks behind the strand dune, likewise infantrymen and amounting to -- according to estimates -- 1 platoon.

Known* In s'Gravenzande there are 1 - 2 companies of depot battalion infantrymen. In addition there is the 5th Depot Company of Coast Artillery.

Known* In Hook of Holland there are several companies of coast artillery. The entrance to the place is guarded. Automobiles are controlled by military police. On the

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* Throughout text of all documents, asterisks will be used to identify notes written in by hand. Notes are in red pencil unless otherwise specifically stated. G-2.

1. All underlines were made with typewriter unless otherwise specifically stated. G-2.

2. Five words in this document are lined through with red pencil, as noted. G-2.

[redacted]

northeast edge of the place is a large barrack camp of marine troops (Marine infantry?) with estimated room for 300 — 400 men. On the meadow nearby are 2 small calibered antiaircraft cannon. In the middle of the barracks there are 4 long, low, tent-like structures covered with black sail cloth; they look as if they might be intended as a place for storage of ammunition boxes or such like.

Known*

In Hook of Holland there must also be a part of the Depot battalion of the 39th Inf. Rgt., because about 10 men were observed with this number on them.

Known*

On the railroad track between Kijkduin and Ter Heide, 2 km southwest of Kijkduin, there are 3 concrete ammunition store rooms built under the railway embankment. Exit on the landslide.

Occupation of old Alexander barracks not known.[3]

In regard to the report of the above intermediary we wish to say that according to information which we have up until the present time the Depot battalions of the Grenadiers and the Jaegers are quartered in the new[4] Alexander barracks in The Hague. The commander is Lt. Moorman. Hence, we assume that the Jaegers in Monster and s'Gravenzande are trained troops. The same is true of 39th Inf. Rgt. in Hook of Holland.

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3. These notes written in black pencil. G-2.
4. Underlines in red pencil. G-2.

[redacted]

[redacted]

Observation time 24: April 26, 1940

Under commander of East Front. Fortress of Holland. Parts up to now in Utrecht.[3]

On the Schiphol airport, between Badhoevedorp and Schipol there were seen on April 26 some men of the 25th Inf. Rgt.,[4] belonging to the garrison of the airport.

From the Haarlem - Leiden highway in Groenendall (south of Leiden) we saw a large number of cannon (about 40 - 50) on a road leading off from the main road toward the east; the road had rows of trees on each side. The caliber must have been about 6 cm. There were seen in an inclosure west of the main highway, even with the side road, a group of about 30 horses. We suspected that there were others on the farms in the neighborhood.

5 Inf.Div.* up to now south of Uden.[3]

From the Haarlem - Leiden highway in Lisse (north of Sassenheim) we saw men of the 2d Inf. Rgt.[4] and horse drawn artillery. (April 26) A cantonment 500 meters south of the place.

3d Div. Known*

One kilometer south and one kilometer north of the town of Sassenheim (north of Leiden) we saw from the Haarlem - Leiden highway men of the 1st Inf. Rgt.[4] in emergency quarters. Sheltered in camp spaces (April 26).

[redacted]

[redacted]

5

1 km. southwest of Pl. III[3]

On the terrain between The Hague - Delft highway and the Vliet canal, about 1.5 km. north of the north edge of Delft two searchlights were seen on April 24. They were motorized and very large, diameter 2 m. - 2.50 m. On a level with the searchlights, but nearer The Hague - Delft highway, we saw two heavy machine guns[4] in position for antiaircraft defense.

At the south exit from Delft, on the terrain between the highway and the Delft - Rotterdam railway line, 4 heavy machine guns in position for antiaircraft defense.

In the harbor of Rotterdam, on the loading quay between the inner harbor and the "railroad harbor" (see Rotterdam sheet 1:50,000) we saw on April 24 five antitank cannon, with vehicles for transporting over the terrain, brought in for shipment. A larger number was suspected. Whether they were loaded on railway cars or on ships we could not ascertain. It is presumed that they were to be shipped to Zeeland. The cannon looked new.

5th I.D. up to now at Germert under Com. of Fort Holland*

Coast Artillery?*

On April 24 we noticed in Dordrecht men of the 13th Inf. Rgt.[4] and of the 23rd Inf. Rgt.,[4] and in addition the corps of torpedineers grouped under the leadership of a colonel.

5. Illegible note written here in black pencil. G-2.

[redacted]

[redacted]

Landing expected there apparently*

A large meadow surface, suitable for use as a landing field and on the south side of the Utrecht-Amersfoort railway line, between Soestduinen and Amersfoort, beginning about 2 km. east of Soestduinen, has been made unfit for landing by scattering worn out pieces of automobiles over it.

Time of Observation: May 1, 1940.

?*

Kasteel Oud Wassenaar (see surveyors plan 421) was planned as general headquarters.[4] Now a high house on the Schouweg has been taken into consideration, so it is claimed. Telephone lines have already been laid. The technical service was announced before in Villa Boekhorst.

The Assistant Chief, General Vorst tot Vorst, has become representative of the Commander of the Capital, The Hague. From this we assume that the general staff is in the neighborhood.

So then not toward Woerden! *

22 Div. Ic. No. 401/40 Secret for Command[6]

Page 9[7]

Army Headquarters 18 A.H.Q., 4.5.40[8]

Ic. No. 260/40 Secret Material for the Command

Subject: Reconnaissance of the Netherlands.

6. These notes written and underlined in blue ink. G-2.
7. Note in blue pencil. G-2.
8. Illegible note in red pencil.

[redacted]

[redacted]

_____8

The 22d Div.

An intermediary under trial reports:

15th Inf. Rgt. Depot moved from Breda to Delft since May 9. 3d Inf. Rgt. Depot moved from Bergen op Zoom to Den Haag (The Hague)

_____9

For Army Headquarters

Chief of the General Staff

I. A.

_____10

Major in General Staff

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9. Illegible notes in red and green pencil.
10. Illegible signature. G-2.

[redacted]

b. Document No. 14

Transcript from M.A. Report 41/40 secret supplement 1 of April 15, 1940.

M.A. The Hague

In the course of April 13 and 14 the following places were strongly occupied by the 4th Inf. Rgt., cyclist troops, the 2d Art. Rgt. and the Coast Artillery:

Katwijk aan Rijn, Katwijk aan Zee, Noordwijk, Noordwijk aan Zee. (Previously mentioned by telegram).

On a reconnaissance trip made on April 14 the following were seen on the march from Wassenaar toward Noordwijk:

1) A 6 cm. Inf. Cannon Battery of the 4th Inf. Rgt. Cannon and men were loaded on light tanks. We also saw this cannon battery go into quarters in Noordwijk aan Zee.

2) Between 11 and 12 a.m. we saw a horsedrawn battery detail of the 2d Art. Rgt. (4 field howitzers, Krupp 12 cm. and 4 ammunition wagons) on the march from Wassenaar toward Katwijk. It could not be ascertained whether this battery went into quarters at Katwijk or Noordwijk.

3) On April 14, at 1 p.m., we ascertained by observation: 1 cyclist company on the march from Noordwijk toward

Katwijk aan Zee. According to other reports not yet verified there are large units of cyclist troops in the four places mentioned above.

The infantry cannon battery of the 4th Inf. Rgt. and the battery detail of the 2d Art. Rgt. marched in one column. Men and horses were tired and seemed to have been on a long march. March discipline was poor. By the repeated formation of double columns the two troop units became confused several times and blocked the road. A motorized traffic policeman finally put the columns in order.

1 Repeated observations made during the last few weeks have shown that Noordwijk, Noordwijk aan Zee, Katwijk aan Rijn and Katwijk aan Zee are weakly occupied by the 4th Inf. Rgt. (strength about 2 companies and 1 antitank).

It now appears that the entire 4th Inf. Rgt. and at least 1 battery of the 2d Inf. Rgt. have been placed in the four above-named places.

The occupation of Valkenburg near Katwijk aan Rijn has not yet been ascertained.

Aviation Div. F.
Supplement to No. 3455/40 [2]
Supplement to No. 8147/40 Secret
Aviation Command Staff lc.[3]

1. Black penciled line. G-2.
2. Written in blue ink. G-2.
3. Combination of red ink-pad stamp and purple pencil. G-2.

[redacted]

[redacted]

c. Document No. 15

Transcript

Aviation Command Staff

Headquarters April 18, 1940

IC No. 3420/40 Secret material

5 copies
4th copy

Secret material![1]

Aviation attache, The Hague, reports April 15, 1940.

In the early morning hours of the 11, 12, 13 and 14th of April there were night exercises in the city area of The Hague, between 1:00 a.m. and 4:00 a.m.

* These exercises had in mind a sudden occupation of The Hague.[2] According to reports not yet fully confirmed the troops involved seem to have been from the nearby towns of Delft and Leiden.

The second exercise in the early morning hours of April 13 were carried out between 12:30 a.m. and 4:00 a.m. We could observe that all the crossing points and all of the bridges (even the less important ones) around the Government quarter were occupied for several hours by small shock squads consisting of 4 - 6 men. They were equipped with steel helmet, gas mask, haversack, machine gun, and side arms. The liaison between the

1. Stamped in red ink. G-2.
2. All underlines in document from this point on are in red pencil. G-2.

[redacted]

separate squads was maintained by means of motorcycles. During this time all the embassies were watched by such squads. One could enter the embassies only by permission of the police. The troops are distributed over the city partly by trucks and partly by marching. Several transformer stations are guarded.

In addition the following permanent measures of safety have been taken:

1. The private residences of the ministers are guarded by 2 policemen for each one,

2. Each of the residences of the generals is guarded by a sentry armed with a bayonet, pistol and saber,

3. The railway station of The Hague is guarded by 3 sentries.

4. The main post is guarded by a double sentry assignment,

5. The building where the "Staatscourant" is published likewise guarded by one sentry; there is random inspection of the visitors that come in and go out.

On the Malieveld, on the west side of the Haagschen Bosch, 4 additional 2 cm. antiaircraft guns have lately been set up; they are guarded by a double sentry and their crews are quartered close by in the red building situated to the north of the Boerlann.

* The Queen is in the Huis ten Bosch. Since April 11 the chauffeur of the Queen has not been permitted to leave the Huis ten Bosch nor go away from the immediate environment of the Queen. The sentry post in the northwest building of Huis ten Bosch is occupied by soldiers. The entrance and the exit to the Huis ten Bosch are each guarded by a policeman and at night 2 policemen are placed on guard. In addition, the gate to the Huis ten Bosch is closed at night.

On April 1 we observed, on the road leading from Wassenaar toward Nordwijk, four 6 cm. cannon loaded on trucks going toward Nordwijk. The horses belonging to these guns were being carried along in trucks.

?* 2d Art.Rgt.?*

The coast guard between Kijkuin and Ijmuiden has been materially strengthened. The 1st and 3d Inf. Divs. used here as a coast guard must now be up to full strength.

In Loosduinen and Kijkduin we observed units of the 1st, 2d and 33d Infantry Regiment. In the middle of Loosduinen sport grounds there is a football field with 2 gates. Saturday and Sunday games are played here and these are attended by large numbers of people.

Gren.* Jaeg.*

4th Depot Bn.*
1st Depot Artillery*

3 On April 14, in the afternoon, we also observed that Leiden was strongly occupied. On the road leading

3. Line in green pencil. G-2.

[redacted]

from Leiden toward The Hague, between Leidschendamm and Voorburg, there has been an extensive concentration of military trucks. In this area alone we counted over 220 trucks. It is possible that these trucks are to be used to transport the government and the general staff - in case of a conflict - to some place which has not yet been determined.

The intention of the Government to abandon The Hague in such a case is already known.

By the same mail the Military attache, under Supplement 1) to Report 41/40 of April 15, will give a detailed report concerning troop reenforcements and particularly as regards artillery preparations.

On April 14, in the afternoon, we noticed that all the bunkers on the east bank of Moerdkjk had been occupied by troops with steel helmets. Nothing could be ascertained concerning their armament. It could not be ascertained whether this was merely a temporary exercise or a permanent occupation.

4 On April 12 we observed that a reserve marine airport had been arranged on Braassemer Lake. At this place there are three T 8 W airplanes. The bathing establishment and the restaurant were occupied by

4. Illegible note in red pencil. G-2.

[redacted]

[redacted]

marine soldiers. The bathing establishment is right on the water, between the towns of Oude and Wetering. The Braassemer Lake is about 30 km. southwest of Amsterdam.

I. A.
signature

[redacted]

[redacted]

d. Document No. 16

L Lopez 32[1]

Ic[2]

22 Div. Ic No. 409/40 Secret material

Feldmann Operations
Group
Command I.

Capture first[3] ← List of persons to be seized—Holland[4]

Secret material for the Command

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1. Written in blue pencil. G-2.
2. Written in green pencil and followed by three illegible words, also in green. G-2.
3. Written in purple pencil. G-2.
4. It is assumed that there was a good reason, from the German point of view, for wanting each person whose name appears on this list. As examples, the activities of five of those listed at The Hague were as follows:

Oliviers, Captain - Infantry officer on duty with the 3d Section, M.I., Dutch General Staff, for four or five years. He is believed to have directed the military intelligence activity of the Dutch Secret Service, and to have been anti-German.

van der Plassche, Major - Infantry officer assigned to the 3d Section, M.I., Dutch General Staff, as liaison officer. He had been on duty with this section almost continuously since the last war and had actually functioned as its head, since he did all the work. Anti-German.

Rhodes, P.C.O. - A member of the British Intelligence Service. He worked in the British Passport Control office at The Hague.

Lowe, P.C.O. - Same as Rhodes.

van Blankenstein, Dr. - Journalist and reporter for the Haagsche Post. He was close to Dutch Foreign Office and was believed to have been in the Dutch Secret Service. He had been expelled from Germany, was part Jewish, and anti-German.

Gibb - Believed to have been an officer in the British Naval Reserve and doing intelligence work. Ostensibly he was a clerk in the English Consulate at Rotterdam. G-2.

[redacted]

[redacted]

THE HAGUE.

	Mayer, A. H. N.	109 Slingeland Street
	Hendriks, Henry	34 van Stolk Avenue
	Hastings, PCO	
	Walsh, Harry	7 Pansier Street with (Kans)
	Rhodes, PCO	11 Wagenaar Avenue Pension Zonnehoek
	Denis, H.O.E.N.D.	Koninginne Canal 45 Pension Cecil
5	Oliviers, Capt.	52 Lange Vorhout (Office)
	Kerckhoff, J.G.K.	9 Lohengrin Street
	De Boom	16 Buiten Avenue
	van Slooten,	170 Ostade Street
	Delmars, (Miss)	4 a Gedempte Burgwall
	van Buuren, (Mrs.)	27 Station Avenue
	Lewis	
	Ridderbosch	
	Fischer, Dr. Franz	446 Obrecht Street
	Schreiver, P. B.	446 Obrecht Street
	Van der Loo	18 Paulinen Street
	Eliazar, A.	349 Zwolsche Street
	Drooglever	Filmstadt
	Fortuin, W.	
	Ludwig, A. H.	63 Gedempte Burgwall
	Boekelmann	(Loosduinen)
	Boland, H.	326 Newton Street
	van Zilhout, Jean	19 Franklin Street
	Morris, William	Rochus Street 125
	Beyens, E. K.	8 van Speyk Street
	Hollander, E. K.	22 Suriname Street
	Klenke, (Mrs.) W.	80 a Koninginne Canal
	Scheulenburg, Rita	114 Stuijvesant Street
	Ten Cate Hebdrik Horst	12 Heeren Street
	van Tilburg M. A.	67/73/77 Java Street
	de Haas C.A.C.H.	68 Toren Street with (Madam Willemsteyn)
	Rietveld J.A.	25 Schevningesche Avenue
	Scherpenhuizen, Jan	44 Bahn Street
	Hoogesand	
	Nathans W. M.	1 Anna v. Sachsenplein Office: Koninginne Canal 11 Tel. 112749

5. Line drawn with purple pencil. G-2.

[redacted]

[redacted]

S C H E V E N I N G E N.

Lowe, Conrad PCO	3 Berkenboschblock Street
Hooper, William (Bill)	107 Zeekant
Tuit, Johannes	9 West Street

R I J S W I J K.

van t'Hart, Johann	1 Ruysdaelkate
Boom, Johann	Broeksloot
Cohm, J.	14 Vondel Avenue
De Beer	Dalia Street

L E I D E N.

Spaanderman	
De Heer, Hillebrandt	17 Sitter Avenue
Van den Bosch	56 Sitter Avenue
Valderen, M. O.	14 Vronvensteeg
Koolsbergen	25 Boerhoven Avenue

L E I D E N S C H E N D A M M.

Eiffe, Cesar	85 Veursches Street

S A S S E N H E I M.

Barendrecht, J. J.	5 Kooilan

W A S S E N A A R.

5	van der Plassche, Major	55 Groote Hoefijzer Avenue
	van Blankenstein, Dr.	1-3 Konyn Avenue

G O U D A.

Kint, Flora	Bodegrafsche Avenue
Klein	101 Bodegraafsche Straatweg

R O T T E R D A M

Fontes, Jean	30 Provenierssingel
Kamstra, R.	96 Prinzess Juliana Avenue
Vrinten, Adrain	6 Avenue Concordia
Helme(r)s, Anton E.N.D.	22 a Hang
Baas, Jacobus, Johannes, Cornelis	6 Witte Dorp Dremmellaan Street
van Santen, Jacobus	15 b Obreen Street

[redacted]

[redacted]

Peters, J. H.	Nieuwe Binne Avenue 85
Brussen, A. J.	85 b Middeland Street
Bicycle business	71 Paradiys Avenue
Rhine Shipping Company	164 Maaskade
Lescanne, Dir. of the Rhine Shipping Co.	2 Meeuwen Street
Duinker, H.	
Seyerling, Klaas	122 b Vierambach Street
Lareida, Jean	9 Revier Street
van den Vate	24 c Beukels Avenue
Leusing, J. N.	32 Vredenoorplein
Spek u. (Mrs.) Henk	33 Flora Street
Beokhorst	
Kregeloh	54 Westersingel
Oliver, E. T.	
Keuzenkamp, P.	69 Oude Binnen Avenue, La Floor
Dissel, Pieter	Schiekabe
John, Karl August	104 Westseedijk (Dike)
Van der Hoek	
Jansen	Westerbeck Street 26 B
Storm, Meyndert	39 Gashouder Street
Schmidt, Freidrich	Place: Oud Beyerland (South Holland) 73 Ostdijk
Kratzat, Gerhard	Le Havre
De Koning, Wilhelmus	16a Frederik Street
Scholter, E.	16 Frederik Street
Grootenhuis	22 Wynhaven
Koning, Walter	16 Frederik Street
Sprenger, M.	9a Schiedamsche Avenue
von der Waal	2 Westplain, Tel. 15244
van der Hall, G. A.	5 C. Zeeman Street
" G. A.	
" B.	
Steenhorst, Willem	114 b Willem Buytewegh Street Tel. 32013
Steenhorst, jr.	114 b Willem Buytewegh Street Tel. 32013

still R O T T E R D A M.

(Mrs.) de Kate	
Mason	Office of the English Consul General
Gibb	Office of the English Consul General
Proost	Boomjes 81
Hoekstra, J.	26 Dillenburg Street
Ruighaven, P.	19a Zinker Avenue

[redacted]

[redacted]

Operations Group Feldmann

Command 1.

Large Garages in The Hague.

III[1] 1. Atam General Taxi Co. (at Station HSM)*

158 Waldorp St. Tel: G 16378, T 180000

III 2. Branch of Atam - 85/100 Leegwater St.

III 3. Branch of Atam - of 43/47 Kunst St.

III 4. Brussels Automobile Works

215/225 Joh. Camphuijs St. Tel: T 215225

I ~~III~~ 5. Fremery & Greve Automobile Co.

91 a Part St. Tel: 131129

III 6. Myrona - 16 b Bezuidenhout Avenue, Tel: 192990

I 7. Auto Service - 14 Hoogewal[2] Tel: 145020

III 8. Branch of Auto-Service - 26 Waldorp St.

I 9. Branch of Auto-Service - Bilderdiyk St.

III 10. Branch of Auto-Service - Rijkswijk[3] (south of HSM Station)*

I 11. Branch of Auto-Service - 26 a Zijde Ave. (to Wassenaar)*

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1. The Roman numerals appearing throughout the remainder of this document were written in red pencil. According to notes on the document, they were to be interpreted as follows:
   - I. North of Haagsche Bosch (a forest) - Hof Vijver (a body of water) - West Einde (an avenue). East of Kranenburg Ave. - Conrad Quay
   - II. West of Conrad Quay. North of Loos Duinsche Ave.
   - III. South of Haagsche Bosch - Hof Vijver - Westeinde Loos Duinsche Ave. G-2.
2. An oblong body of water. G-2.
3. Line drawn through this word with red pencil. G-2.

[redacted]

[redacted]

I 12. Branch of Auto-Service - Wassenaar[4]

II 13. Abeel Garage - 7 and 13 Abeel St.

III 14. General Automobile, Engine and Tire Trade. "Aumoba" - 8 a Gedempte Burgwal

III 15. General Garage and Automobile Co. (a joint stock company), of 87-89 Carpentier St.

III 16. "Amova", Joint Stock Co., 82 Passage

I/ 17. Andrede la Porte's Industrial Agency, 30 Lange Voorhout

18. Automobile and Engine Co. of Bolland and Co., joint stock company, 51 Will. de Zwijger "Laan". I III 76a II HSM* Station Ave. and 472 Fahrenheit St.

I 19. Auto Palace s'Gravenhage, joint stock company, 7 Hout Ave.

20. Auto Service, joint stock company, 13-14-16a Hoogewal I St., branch 26 Waldorp St. III

I/III 21. Vitesse Auto Works, 17-10 Ged. dike

III 22. "Archipel" Auto Garage, 26-28 Fluweelen St.

III 23. A. G. v. Tol Auto Business, 62 Station Ave.

I 24. Auto Business of the "Le Velo" firm, joint stock company, 52 Zee St.

I 25. Auto Co., "of Nijverheid" joint stock company, 6 Kapel Ave.

I/III 26. Automobile Works of the firm of C. L. de Groot, joint stock company, 142 Toren St. and 144 Torengarage

4. There are both a Wassenaar Street and a Wassenaar Avenue in The Hague. G-2.

[redacted]

[redacted]

II	27.	"Westend" Automobile Works, 169-171 Sinaasappel St.
I	28.	"La Ville" Automobile Garage 32 A. Paulowna St.
I	29.	"Witte Brug Automobile Garage, 110,111-112 and 129a-130 Koninginne Canal.
I	30.	Automobile Importations and Repairs "Aero-Omport", joint stock company, 12a Koninginne Canal
~~III~~	~~31.~~	~~Automobile Co. "Myrona" joint stock, 16b Bezuidenh Ave.~~
III	32.	"Loudon" Auto Service, Baron and Wechgelaar, 2-8 v. Rees St.
I	33.	"Alnac" Automobile Hiring, joint stock company, 32 Anna Paulowna St.
I	34.	I. Baeck, 250 v. Beverning St.
III	35.	Bezuidenhout Garage, 2d on Bosch St., 12 a.
I	36.	Boxen Garage (V. Beverningk St., G. Verkerk and F. de Groot, 235 v. Beverningk St.
III	37.	J. L. V. Bussel's Automobile Works, joint stock company, lg. S.E. Binnensingel 1 g
III	38.	Gebrs. Casteleijn, 65-67 Bloemfontein St.
I	39.	Central Auto Works, joint stock company, 7 Gevers Deynoot St., branch 593 Haagweg, Loosd. II
III	40.	Int. Automobile Co., 2-10 Schelde St.
I	41.	"Duinoord" Central Garage, 132 Schuijt St.
I	42.	V. Diemens Auto Works, 78 Canal Ave.
I	43.	Duitsche Automobile Imp. Co., "Daisy", 46 L. Voorhout

[redacted]

I 44. J. v. Dijk, 14 Schelp Quay

III 45. Aartman Garage, 63 Hofwijck Place

II 46. Ahorn Garage, 14 Ahorn St.

I 47. Arendsburg Garage, 49b Laan v. Roos en Doorn I

I 48. "Banka" Garage, 30-31 Schelp Quay

III 49. "Nova" Garage, 2 Schenk Quay.

I 50. Olanda Garage, 24a Park Ave.

I 51. "Pasmooy" Garage, 10-10a Billiton St.

I 52. L. Ch. Pat Garage, 12 Franken Road

III 53. Sanchez Garage, 154 Theresia St.

I 54. Urban Garage, 12 Franken Road

I 55. Van Werkhoven Garage 120 van Swieten St.

I 56. Haagsche Automobile Co., joint stock company, 10 Koninginne Canal, 41-43a-45b Laan v. Roos I en Dorn and 235 v. Beverningk St. I

57. Holl. Gara e Co., joint stock company, 96 Benhoutsche Ave. ?*

I 58. N. V. Hoymans' Taxi Co. "H.O.T.A.M.", 26 Schuyt St.

I 59. A. J. Konings Garage "de Stormkoning", 60-70 Toussaint Quay.

I 60. J. W. Lagerwij's Auto orks, joint stock company, 65 and 83b Franken St.

61. J. van der Lip Auto Works, joint stock company, I 2 Alexander Place, Branch 91 Lijster, bes St.[5]

5. Since there is a Lijsterbes St. in The Hague, this appears to be an error in typing. G-2.

[redacted]

I 62. Luxe Auto Hiring Enterprise, L.A.V.O., joint stock company, la Koninginne Canal and 13 Hout Ave. I

I 63. H.G.J. Meijer's Automobile Works, joint stock company, 89 Conrad Quay.

III 64. Monopole Garage, 3d on Bosch St. at 10 Bosch St.

III 65. "Maasland" Engine House, 181 Bezuidenh. Ave.

I 66. Oldenbarnevelt Garage, 51-55-57 Joh. v. Oldenb. "Laan"

II 67. Olijf Garage, 43 and 49 Olijf St.

II 68. Christian van Osch, 635 Loosduinsche Ave.

Boundary*

I 69. Priem's Automobile Works, 84 a-b, 86-88 v. Loos St.

III 70. Residentie Garage M. Flinterman, 4-7 Stations Place.

I 71. R'damsche Auto Headquarters, joint stock company of 14a Ruiter St.

I 72. Schev. Auto-Box Garage, joint stock company, 35 Seinpost St.

III 73. "de Haan" Service Station, 152c Joh. Camphuys St.

I 74. "Tromp Garage", J.M. v. Ruyven, 148 and 276 Tromp St.

III 75. N.V. v. d. Valk's Automobile Co., joint stock company, 17-39 Volkerak St. (Showroom 1 Zee St.) I

III 76. Wagners Auto repair and Service Station, 67-69 Duinn Duijn St.

77. Firm of A. and M. de Wind, "Nassau" Garage, 58 Kerk St., I Garage 42 Schelp Quay. I

[redacted]

[redacted]

e. Document No. 17

Secret Material for the Command.

To 22d Div. Det. Ia No. 150/40 Secret material for the Command. Supplement Ia

Enemy Intelligence sheet.

(only for Div. Army Abteilung 22 and East Group)

In addition to the enemy troops given in supplement 1 the following are known:

a) in Delft, in the north edge barracks. In that place probably a reserve depot of 15th Inf. Rgt., further details not known.

b) in Rotterdam, parts of the 9th Inf. Rgt. (3d Div.) and 10 Artillery Rgt. .

c) in Schoonhoven (southeast of Gouda), reserve depot of the 1st Inf. Rgt. (recruits). Training and strength unknown.

d) in Gouda, observation post of the staff commander of the East Front of the Dutch line of fortification (apparently a kind of fortress, pioneers, staff). We do not know whether the observation post is occupied or not.

e) in Woerden 1) Observation post (bunker), of the commander-in-chief of the army, apparently occupied only

[redacted]

by telephone personnel and weak guards. 2) Reserve depot of the 9th Motorized artillery regiment (recruits). Training and strength unknown.

f) On the new Holland water line the following have been put in or made ready:

1) Around Vianen-Vreeswijk (10 km south of Utrecht), part of the 32 Inf. Rgt. (3d Wave). (Wave = part of tank formation).

2) Around Utrecht 25 Inf. Rgt. and 28th (3d Wave).

3) In the area about Maarsen (5 km northwest of Utrecht) up to Muiden (9 km east-southeast of Amsterdam) Brigade C. Staff apparently at Weesp. The following subordinated to: 42 Inf. Rgt. (Maarsen-Ondover-Loenen), 31st Inf. Rgt. (Baambrugge-Hinderdam), 34th Inf. Rgt. (Weesp-Muiderberg), 23d Art. Rgt. (Masse in Muiden).

Distribtuion:

Div. - 4
22d Recon. Det. - 4
22d Art. Rgt. - 1
22d Armored Inf. - 1
Total - 10

[redacted] DECLASSIFIED

f. Document No. 18

Page 5[1]

7th Aviation Division
Abteilung I c SECRET Secret 4/18*

Brigade B. No. 2854/40 Secret April 16, 1940

22d Div. I c No. 325/40 g.

Secret material for the command* 4/19*

4/18/40[2]

(copy)

Reports concerning Holland.

Secret material[3] (V-man (intermediary) and Attache reports).

Ia* 4/18[3] 1) German embassy, April 9, 1940, No. 305/40 secret.

1. The technical command of military aviation ("Luchvartbedrijf"), Villa Osiria in Wassenaar, is now in some houses farther north of #69 Schouweg on the west side a short distance in front of the railway crossing on Papageinenweg.[4]

Ib/20*/4 2. Offices of military inspectorships:

x[5] a) Inspector of Artillery: 2 Jan v. Nassau St.[6]

(Tel. 721053)

x b) Inspector of Civil Guards: 23 Heeren Canal[6]

(Tel. 183815)

1. Written with blue pencil. G-2.
2. Written with black pencil. G-2.
3. Written with green pencil. G-2.
4. An avenue. G-2.
5. All x marks throughout this document are in blue pencil. G-2.
6. Underlines in blue pencil. G-2.

[redacted]

DECLASSIFIED

x c) Inspector of Cavalry: 4 Raam Ave.[6] (Tel.111880)

x d) Inspector of Medical Corps of Land Forces: 22 Raam Ave.[6] (Tel. 182350)

x e) Inspector of Infantry: 24a Park St.[6] (Tel. 180972)

not recorded* f) Inspector of Royal (mounted police) 11 Nieuwe Zuilenstein St.[7] (Tel. 776990)

Dept. of Frontier Guards: 11 N. Zuilenstein St. (721153)

x g) Inspector of military administration: 7 Lange Voorhout[6] (Tel. 1118880)

x h) Inspector of Engineers, 4 Plein (Tel. 1118880)

x i) Inspectorship of Engineers: Office 6 Atjeh St.[6] (Tel. 557069)

2) Enclosure for Bremen "Nest" No. 159/40 Secret I. Aviation of Apr. 6, 1940.

x 1. Commander-in-chief of the Army Lt. Gen. Baron Voorst tot Voorst has his staff headquarters at the present time at the exit of the City of Zeist, in the direction of Amersfoort.

x 2. Staff of the 1st Army Corps, Major General Karsten, commander, The Hague, on Smidsplein[6].

x 3. Staff Headquarters of the 1st Division of the 1st Army Corps, The Hague, 1b Raam Ave.[6]

7. Underline in red pencil.

[redacted]

4. Chief Commissariat Officer of the Army, The Hague, 7 Sweelinck Place.[6]

3) Foreign intelligence Defense report No. 11413/40 secret Aviation Intelligence /E.V. (?) April 3, 1940.

A relative of an intelligence officer returning from Holland on March 31 reports:

1. Heavy antiaircraft artillery which heretofore was in the region of Wassenaar near The Hague has been moved from there to the north coast of Holland.

Probably over half* 2. The coastal fortifications in Scheveningen seem to be neglected; a part of them are no longer occupied by sentries! Shelters are padlocked.

4) Enclosure for Bremen "Nest" No. 141/40 secret of March 28.

x 1. Commander-in-chief of land and sea forces, Lt. Gen. Winkelmann, The Hague, 7 Lange Voorhout.[6]

x 2. Commander of Holland Fortress, The Hague, 81 Bezuidenhout. (Now: Gouda St.)[8]

x 3. Staff of the 1st Army Corps (Field Army Commander), The Hague, 7 Lange Voorhout (Ministry of Navy).[8]

x 4. Chief of the naval staff Admiral J. Th. Fuerstner, The Hague, 169-71 Badhuis Ave.

x 5. Col. Boreel, of naval staff, The Hague, 3 Amalia St.

cannot be found* x 6. "Villa Boeckhorst" Aviation Enterprise, The Hague,

8. Written in black pencil. G-2.

[redacted]

[redacted]

69 Schou Ave.

x 7. Antiaircraft Headquarters Staff, General Best, The Hague, 2 Jacob Mossel St. Searchlight, antiaircraft cannon, Rifles and air cruisers are under Col. Vilmar, whose staff is quartered in the same house.

x 8. Military inspector of aviation Col. J. F. van Heyst, - Staff of Aviation Brigade, The Hague, 277 Laan v. Nieuw Oost Indie.[6]

x 9. Staff of the L. of C. Service, "Hotel Paulez", The Hague, 2 Korte Voorhout.

10. Inspectorship of Aerial Protection, The Hague, 23 Heeren Canal.

5) Foreign Intelligence/Defense No. 11696/40 secret Defense. Home Aviation (?) 4/11/40.

x 1. General Headquarters, Section for Air Defense, Lt. Gen. van Best, commander: 2 Jakob Mossel St. (West corner of Juliana V. Stolberg St.) Guard Headquarters Staff (quartered at 7 van de Para St., ("Public Trade School"), 1 sentry posted (10 live cartridges). —In staff headquarters, in addition: 1 corporal 1 NCO, 4 orderlies, 1 major of the staff headquarters: Capt. Kouwenhoven.

2. In the "Public Trade School" mentioned under 1 (7 van de Para St.) there is also, at the present time, a school for the teaching of the theory of aviation; it is attended by about 60 volunteers.

[redacted]

[redacted]

3. In a northwest corner (intersection of) Laan van Nieuw Oost Indie and Louise Coligny St.: Intelligence headquarters for all air sentries in s'Gravenhage and surroundings.

4. On the east side of Louise Henriette St., almost on Albertine St.: Chief Intelligence Headquarters (for all Holland) for air sentry service.

5). Southwest - corner building Bezuidenhoutsche Ave. and van den Bosch St. some high staff (much activity on the part of orderlies and military police); further details could not be obtained.

6). Koningin Sophie St. in 2 schools, recruits (half) of the Inf. Rgt. 18 (the other half in Kleedinghuis Haarlem). Diagonally across: the corresponding officers and NCO's.

7. On "Malieveld" and "Herten kamp"; heavy machine guns and antiaircraft artillery (against landings from the air). - The corresponding crews are in Korte Voorhout to the west near "Amicitia".

6) Enclosure for Bremen "Nest" B. Nr. secret 144/40 Home Aviation of March 29, 1940.

x 1.) Central Department for Supplying the Defense Forces, Chief Engineer Begeman, The Hague, 19 Lange Hout St.

2.) Chief administration state operation of artillery establishments, heads: de Neef and Feth, The Hague 23 Bezuidenhout.

[redacted]

[redacted]

3.) T.A.V.O. - Technical procurement and information training, construction, state artillery operation of establishments,

The Hague, 6a Prinsesse Canal.

4.) Management and General Secretariat, state operation of artillery establishments, Director: Den Hollander,

The Hague, 102 Lange Voorhout.

5.) Material for navy, Chief of 4th Section, (Rear Admiral)[9]

A.L.N. Doorman, The Hague, 6 de Eerens Place

6.) Crisis Export Bureau, The Hague, 6 Piet Hein Place.

City Plans, with exact designation of positions follow.

F.I.R.I.A.[10]

Col. Lampertsdoerfer

9. These two words are written in black pencil, first in Dutch and then in German. G-2.
10. This abbreviation not identified. G-2.

[redacted]

[redacted]

g. Document No. 19

Secret Command Material

After the Start "Secret!"

To 22d Div. Section Ia Enclosure ~~III~~ IV[1]

No. 150/40 Secret Command material V.

Explanation of City Map.

1. Royal Castle, main entrance from Noordeinde Street.

2. Navy Department, headquarters of the Headquarters Staff of the Defense Forces, chief entrance from Lange Voorhout;[2] apparently there are side entrances from Hooge Nieuw St. and from the street running diagonally.

3. Office for posts and telegraph, here is an amplifier station for the main telephone lines; entrances from Prinse St. and Kerk Square, other exits now known.

4. Telegraph offices, contents unknown.

5. Castle of Princess Juliana.

6. War Department, chief entrance from Lange Poten;[3] there is probably a side entrance from Kalver Market.

7. Ministry of Foreign Affairs, chief entrance from the Square.

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1. The figure "III" is crossed out in blue pencil and "IV" substituted in the same color. G-2.
2. A small park in front of a larger forest park.
3. A street.

[redacted]

[redacted]

8. Headquarters Staff of the Luftwaffe, 2 Jacob Mossel St., Lt. Gen. van Best.

9. Huis ten Bosch, summer castle of the Queen.

10. Frederik barracks, apparently occupied as a coast artillery depot (depot unit).

11. Alexander barracks, probably occupied by the depot battalion of the Grenadiers and Jaegers; before it is a drill space.

12. Barracks on Waalsdorper Ave., probably occupied by parts of the Grenadier regiment and Jaeger regiment.

13. Waalsdorp Training Grounds, probably occupied by parts of the Grenadier regiment.

14. Water works.

15. Known antiaircraft position for harbor protection (1 antiaircraft cannon).

16. Radio transmission station.

17. Power plant (electric).

18. Gas works.

19. Blocking of railroads by 1/3 of 3d Bn. of 22d Pioneer Regiment.

20. Hotel Paulez, Korte Voorhout, at this place the directing staff of the supply service of the Dutch army.

21. Staff of the Infantry Army Corps, chief entrance Smids Square (in the immediate neighborhood of the French

[redacted]

[redacted]

Consulate). General commanding: Major General Karstens.

22. Positions for antiaircraft cannon.

23. Staff of the 1st Div. on Raam Ave. 1 b.

[redacted]

[redacted]

h. Document No. 20

Enclosure 1 for 22d Div. IC No. 50/40 secret command material[1]
4/15/40

Secret command material[2]

for p. 1*

Supplement 1 for IC/42/40 secret MATTER FOR THE CHIEF.[3]

The following explanations are given concerning the enclosed "CITO" plan:

1.) Two foot ball goals have been standing in the place marked on the sports field since Sunday, April 7 (Square C 2).

2.) The land surrounded with 2) comprises two skating rinks containing 4 rows of high electric light poles. The rest of the land, which is not shown by means of blue hatching, is allotted in the form of small gardens and is traversed from end to end by deep ditches (Square E 10).

3.) The western part of the land under point 3), surrounded with a line, is mainly occupied by hothouses. The eastern part is occupied partly by small gardens with scattered hothouses, and partly by enclosed orchards and groves of tall trees (Square D 10).

---

1. Written and underlined in blue ink. G-2.
2. Stamped and underlined in red. G-2.
3. Half typed, half written in blue ink. Word "Chief" doubly underscored with red pencil. G-2.

[redacted]

[redacted]

4.) The heavy AA gun position specified under 4) is no longer in existence (Square C 12).

5.) The red point at 5) marks a large bunker disguised as a red house of medium size (Square D 9/10).

The red dots given under 6) and 7) represent roofed-over air raid shelters (Square D 9/10).

The land marked by the broken line, under point 8), is unoccupied meadow land containing ditches, most of which lead to Bezuidenhoutschen Weg. The same is true of Point 9). The ditches are now filled to their tops, particularly those running north and south (at least 1½ to 2 meters wide. Square E 10).

10 & 11. The southern entrance to the Huis ten Bosch is marked with an arrow under 10), and the northern entrance to the Huis ten Bosch under 11). (Square D 9/10).

12) A private house now occupied by troops is marked under 12). (Square C 3).

13) A red house is situated on the Malieveld for the use of the crews of the light and medium weight AA artillery installed on the Malieveld (Square D 8).

13 a) No gun crews are manning the medium weight and light AA artillery on the Malieveld, but it is guarded by permanent sentinels.

14) An AA machine-gun position on top of a house. (Square D 8).

[redacted]

[redacted]

15) Light AA machine-gun position (Square H 8).

(signed)

F. d. R. d. A.

Lampertsdörfer.[4]
Lieutenant

4. Signed in blue ink. G-2.

[redacted]

[redacted] DECLASSIFIED

i. Document No. 21

~~L. Lopez 18~~[1]
"S" 6[2]

GHQ OF THE ARMY

Gen. Staff of Army of the West, to operate on foreign soil
No. 390/40 secret for command

April 17, 1940.

_____[3]

Re: The Netherlands

3 copies
2d copy.

Com.Mat.* _____[4]

Ia* ____[5]

To the 22d Infantry Division.

Valkenburg unoccupied. There is only 1 sentry in front of the artificial stone factory 200 meters south of the point where the Rijnburg-Katwijk road crosses the Rhine. The factory produces concrete slabs.

Katwijk is occupied by a ?* strong force[6] amounting to about 1 company. Number of the Regiment not yet learned.

Poeldijk, April 10. Parts of the Chasseur Regiment observed, not more than two companies strong.

I. A.
_____[7]

3088/1

1. Written and crossed out in blue pencil. G-2.
2. Written in blue pencil. G-2.
3. Illegible entry in red pencil. G-2.
4. Illegible entry in purple pencil. G-2.
5. Illegible entry in black pencil. G-2.
6. Underlined in red pencil. G-2.
7. Illegible signature.

[redacted] DECLASSIFIED

[redacted]

j. Document No. 22

Copy

Commander in Chief of the Air Arm

Directing Staff I c, Hq., April 18, 1940.

No. 7056/40, secret (III A 5)

Secret Matter for Hq.![1]

To Aviation Division 7,
Air Fleet Hq. 2. (by way of information)

Re: Hook of Holland.

A reliable but unconfirmed report states that:

280 m* Several coast artillery companies[2] are stationed at the Hook of Holland. The entrance to the place is guarded. Automobiles are inspected by the military police. A large hut camp of marines (?) (about 300-400 men) is situated at the northeastern edge of the place. In the center of the camp are located 4 long, low, tentlike structures covered with black canvas, which look like magazines containing ammunition chests, or the like.

In addition to the troops mentioned, a part of the 39th Inf. Reg. must be stationed at the Hook of Holland, as about 10 details wearing this number have been observed. Three concrete ammunition magazines have been constructed under the

1. Stamped in red ink. G-2.
2. All underlines throughout this document are in red pencil. G-2.

[redacted]

[redacted]

embankment of the railway line between Kijkduin and Terheijden, 2 km southwest of Kijkduin. Exit on the side toward the land.

The following insignia have been observed on uniforms at the Hook of Holland:

3d, 6th, and 13th Artillery Regiments;

on leave?* 38th Inf. Reg.

I.A.
signature

[redacted]

[redacted] DECLASSIFIED

k. Document No. 23

22 Div. I c No. 52/40 Secret command material

1

P.3*

Secret Material!*

Telephone from 7th Aviation Division, Apr. 18, 1940, 12:15 p.m.

Report dated April 12, 1940

1) There are 2 batteries of the 2d Art. Reg. in Katwijk-aan-Zee.

I a 2) There is 1 infantry company (probably of the 4th Inf. Reg.) in Katwijk aan den Rijn.

2

3) Valkenburg unoccupied; 1 sentinel stands in front of the artificial stone factory 200 meters south of the place.

4) Nothing learned in region around Rijswijk. Report follows.

5) Infantry in the Loosduinen schools. More complete details follow.

6) Parts of Chasseur Reg. in the town, school, and private quarters, in Monster.

7) Parts of Chasseur Reg. in Poeldijk. Strength follows.

8) Not more than 2 companies of Chasseur Reg. in Naaldwijk.

1. Illegible entry in red pencil and purple ink. G-2.
2. Illegible entry in green pencil. G-2.

[redacted]

DECLASSIFIED

9) 1-2 companies of chasseurs, 5th Coast Art. Reg. in ~~The Hague~~ S-Gravezande.

10) ½-1 company of chasseurs in the Kijkduin School.

11) Terheiden, 1 platoon in town guard in 2 huts (chasseurs).

5) - 11) Strength not over 3 battalions.

12) Not more than 2 companies of infantry and antitank troops, probably of the 4th Inf. Reg., in Noordwijk.

Delivered: Lt. Lampertsdörfer.

Received: Capt. Sommer.

[redacted] DECLASSIFIED

1. Document No. 24

22 Inf. Div. No. 357/40[1]

Secret from 4/27/40[1]

22 Inf. Div.*

Army Hqr. 18 I a 248/40 secret[1]

ARMY HEADQUARTERS I a* [2] 17/4*
Gen. Staff of Army, Foreign Army of West.
P. 7[3]

No. 412/40 Secret matter for command. April 22, 194
300 copies
[4] Secret Matter for the Command! 202d copy.

Changes in the Dutch Positions and Fortifications up to April 15, 1940

Ia* [5] 1. The Ijssel-Maas Position.

The frontier position on the west bank of the Waal between Bemmel and Nimwegen has been strengthened by the installation of 8 new cupolas on the winter dike.

The beginnings of a field position at Bemmel running in a northerly direction, which will probably intersect the Pannerden river triangle, have been recognized.

II. The Grebbe Line.

1.) The position north of Amersfoort has been strength-

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2. Illegible entry in red pencil. G-2.
3. Written and underlined with blue pencil. G-2.
4. Illegible entry in red pencil. G-2.
5. Illegible entry in green pencil. G-2.

[redacted] DECLASSIFIED

ened but little since January, 1940. Antitank trenches or traps running along the front line have been completed at the Amersfoort bridgehead.

Flooding:

The flooded territory north of the Nijkerk-Soestdijk Line, shown in the map of fortifications, was no longer flooded on April 10, but most of it was apparently still swampy. The Amersfoort bridgehead was free from flooding, even to the north of the Amersfoort-Apeldoorn railway line, with exception of a narrow strip of swamp east of the Eem.

2.) The position at Renswoude bridgehead in the middle sector of the Grebbe Line is developed along three lines.

a) The course of the newly constructed front line is as follows: Northwest to Scherpenzeel - south to Renswoude - north to Ederveen - 1 km east to De Klomp - 2 km east to Veenendaal. This line is 500 meters deep and consists of fire trenches and simple infantry obstacles. To the south of Renswoude it comprises an antitank trench or trap 5 km long. Scherpenzeel has been developed as a point of support.

b) The central position constructed previously on the railway on both sides of Emmikhuizen has been slightly strengthened by the construction of earthworks. The villages of Emmikhuizen and Veenendaal have been developed as points of support.

c) New earthworks have been thrown up behind this line

[redacted]

on the west bank of the Bishop David Canal between Holevoet and Veenendaal.

d) No information is available with regard to the new position begun along the edge of the wood west of the Grebbe Lowlands.

Flooding:

The land at Renswoude bridgehead to the north of the Arnheim-Utrecht railway line is almost entirely free from flooding. Only to the southwest of Renswoude is there a swampy strip of land running in an easterly direction. The land between Amersfoort and Scherpenzeel seems to be flooded less than is indicated on the maps.

A large part of the land south of the railway line is flooded on both sides of the antitank trenches or traps.

3.) The fortifications at Rhenen bridgehead in the southern sector of the Grebbe Line between Veenendaal and the Lower Rhine have a total depth of about 5 km. While the fortifications east of Grebbe Hill have not been greatly strengthened, Grebbe Hill itself has recently been provided with field fortifications, and possibly also with permanent fortifications, which, however, are apparently not as yet very strong.

The deep railway cut running westward east of Rhenen is being used as an obstacle against tanks and armored cars. The construction of positions (trenches and obstacles) 500

[redacted]

meters deep has been begun west of this cut.

Flooding:

The flooded region between Veenendaal and the Lower Rhine is somewhat less extensive than was hitherto believed.

III. Southern extension of the Grebbe Line.

1.) The depth of the position has been increased between the Lower Rhine and the Waal by the construction of new earthworks. The development of the villages of Lienden and Echteld into points of support in the field has been begun.

Flooding has occurred to date only to the south of the Nimwegen-Tiel railway line. The position has, one the other hand, been strengthened to the north of the railway by the construction of an antitank trench or trap. On April 10, the region between the highwater dikes had been flooded by water from the Lower Rhine and the Waal.

2.) No change has occurred in the development of the positions between the Waal and the Maas and in the extent of the flooding. Construction of an antitank trench or trap has been begun in the region north of Puiflijk, which has not been flooded.

3.) A weak, shallow position with obstacles and field fortifications running its entire length has been constructed between Megen and Grave on the south bank of the Maas.

IV. Fortifications along the Zuid-Willems Canal.

[redacted]

The fortifications on the Zuid-Willems Canal between Lock 13 (6 km north of the canal crossing) and the City of Weert have been greatly strengthened. In addition to the sniper's posts known to exist there previously, which were located at intervals of about 100 meters west of the Deichstrasse and are quite high, new posts of this kind, half as high as the dike, have been constructed in the last few weeks. All of these are located in the intervals between the old posts. The wire entaglements on the west bank have been strengthened. Only weak infantry obstacles have hitherto been recognized on the east bank of the Canal. Construction of a stronger work has apparently been begun west of the canal crossing at Nederweert. The fortifications on the north bank of the Noorder Canal have apparently also been strengthened.

V. New Waterline.

1.) Since the beginning of March, many earthworks have begun to be replaced with concrete sniper's posts, most of which are light, while others are of medium-weight construction. Most of them can be completed by the end of April, 1940. As a rule, the works are located on the east bank of the Vecht near the river. Their course turns abruptly eastward on both sides of the Naarden-Bussum-Amsterdam road, where they have a total depth of 10-12 km. They are laid out

[redacted]

[redacted]

at this point in three lines, the foremost of which contains the old Fort Naarden, while the second and strongest runs along both sides of Muiderberg and joins the Vecht in the south.

To the south of the Naarden bridgehead, a few advanced sniper's posts have been constructed on the dikes running from the east through the lake region.

With the exception of the very large natural lakes, no flooding whatever could be observed on April 10.

2.) Many sniper's posts have been constructed at 100-meter intervals between Fort Ruigenhout and Zuiten near the northwestern front of the Utrecht bridgehead. A second strong post is under construction at Swarte-Water, 2 km southwest of this point.

We have no new reports concerning the eastern and southern fronts at Utrecht.

VI. SUMMARY.

Work on the Dutch fortifications has been going on ever since the termination of the period of frost at the end of February, 1940, many workers and large quantities of building materials being employed. In many places, especially at the New Waterline, field fortifications have been strengthened by the construction of reinforced concrete works or have been replaced by sniper's posts. An especially strong position

[redacted]

has been constructed on the Zuid-Willems Canal on both sides of Nederweert.

The defensive power of the fortifications has been increased.

1 enclosure.

I. A.

_____6

6. Mimeographed signature illegible. G-2.

[redacted]

m. Document No. 25

P II[1]

Date 5/8*

Com.mat. 22d Div. Ia No. 408/40 g K.[2]
8*
V

Secret material for the command*

Ia[3]
U[1]

1. Dutch train conductors report that no trains have run between Enschede and Gronau since May 8, because all trains are being taken for military purposes.

8/5[1]
Date 5/8[1]

2. A trustworthy intermediary reports on May 7:

All leaves, even those of persons on leave for study, were cancelled by telegraph beginning with noon May 7, because a German invasion is again expected. All members of the National Socialist Party in the army, soldiers and officers, were arrested.

3. The airports of: Vlissingen, Gibze-Rijn, Ypenburg have been given strong[4] antiaircraft protection. These airports have not yet been made unfit for use, and we have observed no preparations to make them so.

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1. Entry in blue pencil. G-2.
2. Written and underlined in blue ink. G-2.
3. "Ia" written in red pencil; "a" lined through with blue pencil. G-2.
4. Underlined in red. G-2.

[redacted]

Observations since May 3:

On the edges of the Endhofen airport concrete cylinders with projecting iron rods have been prepared for the purpose of making the airport unfit for use.

May 4: Schiphol blocked for civilians since May 1.

4) Ypenburg airport has been surrounded by a fence 4 meters high and a strong military guard placed over it. The hangars have been camouflaged by nets. On May 3 it was occupied by the following: 10 Fokkers D 21, 7 Fokkers G 1.

On Airport Y 2 we have observed a tower like structure, supposedly for mounting an antiaircraft gun. On the south edge we have observed the building of earthwork positions.

Sent through by: Major v. Duehring.

signed: Lampertsdoerfer

May 8, 1940

(Communication of the 7th Aviation Group)[5]

5. Entered in black pencil. G-2.

n. Document No. 26

Transcript

To the 22d Infantry Division

_____1

1) Telegram of the Air Attache.

Defense measures on April 10.

Bridges and roads occupied by military forces (in the Government quarter). Roads to the Ypenburg airport blocked. Entrance to Huis ten Bosch blocked and guarded by military forces.

All railroad buildings and military structures are guarded by soldiers. In Scheveningen the houses on the seashore are blinded. The Dutch are said to have positive information of German invasion, only Holland - not Belgium. Reason: The preparation of air bases. The latter incomprehensible, because Holland is not suited for quick preparation of new airports.

2) Reports from the intermediary and the press.

From the area west of the Grebbe line troops have been sent to the coast, chiefly to the mouth of the Scheldt at coast points that are in danger. Sentry service carried out by the air arm and the navy is very active on the coast.

1. Illegible entry in black pencil. G-2.

[redacted]

The same measures have also been taken in Belgium. The automobile highways Amsterdam-Utrecht - The Hague-Rotterdam have been made ready for blocking by the drawing up of light tanks. Distance of 50 - 100 meters in the middle of the highway. The light tanks are manned day and night by 1 - 2 soldiers. All the bridges on the automobile highway are guarded by machine guns. The Hague - Rotterdam highway is protected by machine guns in the direction of Rotterdam.

Military airplanes have been flown from Naples to Batavia.

Active preparations are being made in South England for defense against landings from the air.

On the night of May 3-4 21 persons were arrested in Holland, for political activity.

Intermediary reports: in Aberdeen, Montrose and Arbroath troops are being assembled for embarkation. It is possible that a landing in Holland is planned.

The Firth of Forth and the entrances of the Humber, as well as the City of Hull, are blocked for ship traffic (The report is forwarded with reservations).

Dispatching point: 7th Aviation Group Lt.Lampertsdoerfer

May 9, 1940.

[redacted]

o. Document No. 27

50[1]

Secret Material for the Command[2]

Enclosure 1b.

To 22d Div. Det. Ia
No. 150/40 Command
material, secret.

Supplement to Enemy Intelligence Sheet

The Netherlands have declared a state of alarm. Defenses have been reenforced on all frontiers, particularly on the coast.

Details:

1) In The Hague all public buildings, banks and the dwellings of high officials are guarded. The government quarter has been blocked off. The most important points of crossing in the city and the railroads are occupied by military forces. The Ypenburg airport is blocked off and surrounded by a fence 4 meters high. The Huis ten Bosch castle is protected by military forces.

2) On The Hague-Rotterdam automobile highway light tanks armed with machine guns are stationed at short distances apart to block the road and the same is true of the automobile

1. Entered in blue pencil. G-2.
2. Stamped in red ink. G-2.

highway toward Utrecht and Amsterdam. They are to be attacked by our infantrymen with MGS and are to be gathered on the side of the road by the troops as soon as possible. The roads must be ready for emergency landings.

3) A part of the troops put on the new Holland water line have been moved toward the west. Known up until now:

a) Ypenburg airport and Schiphol (southwest of Amsterdam) airport, parts of 25th Inf. Rgt. (apparently 1 battalion each);

b) Reenforcement troops at the mouth of the Scheldt (and possibly Hook of Holland also)

4) On all airports (not landing places) there are said to be armored scout cars that are to go into action in case of landings. If possible they are to be captured in good condition (later use). If this is not possible, they are to be put out of action in any case. Hence, after landing all anti-tank weapons are to be made ready for use, because we must count on the advance of armored scout cars.

5) We must count on the possibility of English landings. At any rate we must count on the possibility of English air attacks, after noon at the latest, but particularly during the night.

File

SPECIAL BULLETIN
No. 27
G-2/2657-231

MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT
Washington, November 28, 1940

NOTICE

The information contained in this series of bulletins will be restricted to items from official sources which are reasonably confirmed.

This document is being given an approved distribution, and no additional copies are available in the Military Intelligence Division. For provisions governing its reproduction see Letter TAG 350.05 M.I.D. (9-19-40) M-B-M.

THE GERMAN ARMORED (PANZER) TROOP SCHOOL AND ARMY MOTORIZATION SCHOOL

SOURCE

At the invitation of the German General Staff, four American official observers visited the German Armored (Panzer) Troop School and Army Motorization School at Wunsdorf, 25 miles south of Berlin, on October 4, 1940. This bulletin is based upon their observations, as well as upon their conversations with German officers on duty at the school.

CONTENTS

[redacted]

[redacted]

1. THE ARMORED (PANZER) TROOP SCHOOL

a. Mission

The commandant outlined the mission of the Armored Troop School in approximately these words:

"The modern armored unit with its modern equipment demands the best in leadership and technical ability. Its commander must not only be thoroughly familiar with the capabilities, limitations, and tactical use of materiel in his own particular organization, but he must be equally well informed on materiel in organizations with which he is likely to cooperate in combat.

"We are trying to keep our instruction as practical as possible. All of our instructors have had combat experience, and many of them have returned recently from the front.

"We have no great secrets at this school. The greatest factor in successful employment of armored troops is speed in obtaining initial coordination of arms and in execution of coordinated missions by various arms.

"Supply is extremely important; hence it is emphasized in all our problems and exercises.

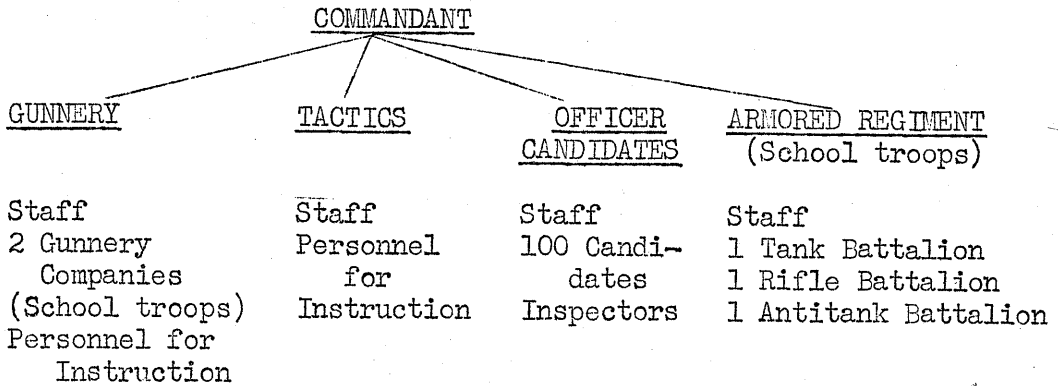
"A correct tactical conception of the employment of armored troops is fundamental. If a highly mobile armored force is launched in combat in accordance with correct tactical principles, it is capable of obtaining rapid success. If, on the other hand, such a force is launched in accordance with false tactical principles, the results are likely to come just as rapidly, but they are also likely to be irretrievably disastrous. Hence, energetic and capable leadership is an essential quality in armored force unit commanders.

"The primary purpose of this school is to train officers and key noncommissioned officers for tank units and to assist in the development and testing of new materiel for armored units."

b. Organization

[redacted]

[redacted]



c. Demonstration: Armored Troops in the Attack

(1) Terrain and Weather Conditions

The school troops staged a demonstration in the maneuver area for the purpose of illustrating some of the troop-leading features involved in attack by an armored force and the general technique employed in the execution of such an attack.

The terrain of the maneuver area is gently rolling and sandy, but, since the ground is covered with well-rooted grass, there is a firm footing for both wheel and track vehicles. About half of the reservation is irregularly wooded, but in other areas wheeled vehicles, including motorcycles, can move directly cross country without difficulty.

There was a heavy fog over the area when the demonstration was staged, and, since visibility was restricted to about 150 yards, not more than two or three tanks could be observed in action at one time.

(2) Orientation of the Tactical Situation

The demonstration was preceded by a brief orientation on the assumed tactical situation delivered by the commander of the armored regiment (school troops), who said:

"The 2nd Armored Division, assisting in a general attack, is advancing in a zone approximately six kilometers wide at this point.

"Yesterday afternoon the divisional infantry brigade, leading the advance, was stopped on the line they now hold. (He pointed to the line).

[redacted]

[redacted]

"The tank brigade, less one battalion, is to assist the infantry brigade in the attack this morning.

"One tank battalion will remain in reserve for the use of the division commander.

"The woods along the right boundary of the divisional zone of action have been gassed by the enemy."[1]

This orientation was given on the friendly front line at a point from which the principal hostile positions that were holding up the advance could normally be seen.

No maps, overlays, aerial photographs, written or mimeographed orders, compasses, or notebooks were used or referred to by the regimental commander or his unit commanders during the entire exercise.

(3) Troop Leading

(a) Procedure

The regimental commander, representing the armored division commander, gave the tactical situation in the presence of 26 participating unit commanders. Immediately afterwards, the plan and oral order were given by the infantry battalion commander charged with making the principal attack. The conversations were substantially as follows:

The infantry battalion commander to the commander of the tank regiment cooperating with him:

"My battalion has been stopped by fire from hostile machine guns and other infantry weapons located along the crest of that hill (pointing to right front) and the eastern edge of the woods on that hill (pointing to the left front).

"I do not know yet the exact positions of any enemy antitank guns or artillery pieces.

"My front line is along the eastern edge of this woods (pointing).

"I will attack at 10:35 A.M. in conjunction

1. The observers believed that this use of gas was assumed in order to force the participating tank units to operate on terrain normally within view of the spectators. G-2.

[redacted]

with the remainder of the infantry brigade.

"The right boundary of my battalion zone of action is along that road (pointing); left boundary, the edge of that woods (pointing), extending to that group of trees (pointing to left front)."

The tank regimental commander speaking to his battalion commanders in the presence of the entire group:

"The tank regiment will attack in two echelons.

"The first echelon, consisting of the First Battalion will move along the route - - - - - - - -. (Here the commander indicated a route by naming roads, villages, and woods which presumably were familiar to all concerned as a result of prior map and terrain studies). It will attack hostile antitank and artillery positions.

"Units of this battalion will move directly to their targets.

"The second echelon, consisting of the Second Battalion, will follow the first echelon and attack hostile antitank guns and heavy infantry weapons.

"The support of the tank attack by fire from heavy infantry weapons is requested.

"It is also requested that the bulk of the artillery supporting fire be placed along the flanks of the zone of the tank attack.

"It is further requested that the tanks be protected from any enemy activity from the direction of ---- woods (pointing toward right front)."

At this point the officer representing the division commander approved the announced plans and requests of the tank and infantry commanders, and directed that they continue with their orders accordingly.

The Second Battalion commander to his company commanders, in the presence of the entire group:

"My battalion, constituting the second tank echelon, will attack in three waves.

[redacted]

"The first wave, consisting of the First Company, will be followed at a maximum distance of 500 meters by the second wave, consisting of the Second Company. These two waves will attack hostile antitank guns and infantry heavy weapons.

"The third wave, consisting of the Third Company, will operate with and support the attack of the infantry battalion.

"I will be on Hill 326 (pointing) during the attack."

At this point the tank regimental commander approved the plan of this battalion commander.

The commander of the First Tank Company, speaking to his platoon leaders, in the presence of the entire group:

"The 1st Platoon will attack in the right of the battalion zone.

"The 2nd Platoon will attack in the left of the battalion zone.

"I will be with the 3rd Platoon, which will attack behind the 2nd Platoon.

"The battalion commander will be on Hill 326."

The commander of the Second Tank Company, speaking to his platoon leaders, in the presence of the entire group:

"The 1st and 2nd Platoons abreast will attack in rear of the First Tank Company.

"I will be with the 3rd Platoon in rear of the center of the 1st and 2nd Platoons.

"The battalion commander will be on Hill 326."

The commander of the Third Tank Company (carrying a metal marker consisting of an 8-inch red and white disc attached to a 2-foot staff) speaking to his platoon leaders, in the presence of the entire group:

[redacted]

[redacted]

"The 1st and 2nd Platoons abreast will attack with the leading infantry elements.

"I will be with the 3rd Platoon in rear of the center of the 1st and 2nd Platoons."

At this point one platoon leader asked the question: "What should my platoon do if threatened by hostile antitank weapons?"

The company commander answered: "Go ahead. Your targets are the hostile machine guns and other weapons that are holding up the infantry."

The tank company commander then handed the marker he was carrying to one of the infantry commanders, presumably the commander of one of the leading infantry elements.

At the conclusion of these conversations, the officer representing the division commander briefly reviewed the situation and plan of attack, concluding with synchronization of watches and the familiar "Are there any questions?"

(b) Comment on Troop Leading

Memorizing Maps. It is believed that the map-reading demonstration moved too rapidly for maximum instructional value, especially if students or spectators were unfamiliar with the terrain and the assumed situation. When this point was raised, it was stated that the commanders would have thoroughly studied their maps and aerial photographs if available, and that they would have had at least a general knowledge of the situation before arriving at this phase of preparation for the attack. Terrain appreciation is emphasized in the training of the German combat officer. The individual who must constantly refer to a map for orientation purposes is considered poorly trained. The Germans believe that the map, once studied, should be carried in the mind rather than in the hand.

Method of Formulating Plans. The demonstrated method for announcing plans, requesting coordination with other weapons, and issuing orders orally and in the presence of all unit commanders concerned is a matter of special training in the German Army. It saves time and facilitates team-work, for each commander present is given a complete picture of the part his unit is to play in the operation.

Camouflage of Command Group Transportation.

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No transportation equipment was visible near the assembled group except a number of motorcycles and two tanks. It was explained that these vehicles were for administrative purposes and would not be present under actual combat conditions. Their presence, however, detracted from the realism of the demonstration.

(4) Execution of the Attack

(a) Procedure

After completion of the troop-leading part of the demonstration, visitors were taken to a knoll about 250 yards in front of the line of departure to observe tanks and infantry enroute to their objectives.

At 10:35 A.M., the hour scheduled for the attack, tanks were heard approaching, and rifles and machine guns opened fire. Two minutes later the first tanks appeared through the fog opposite the spectators. These were elements of the first echelon, whose mission was to attack hostile antitank weapons and artillery. All tanks observed in this echelon were M-III and M-IV types, medium tanks of 17 and 22 tons whose principal weapons were 37-mm. and 75-mm. guns, respectively. They were moving directly ahead — not zig-zagging — towards their objectives at a speed estimated at 10 to 12 miles per hour. Apparently no attempt was made to maintain a formation, for intervals between tanks varied between 20 and 50 yards. All tank doors were closed.

Several tanks in this echelon were firing their principal weapons while moving, although German tank officers among the spectators said this was contrary to gunnery instructions. They stated that tanks armed with the 37-mm. and the 75-mm. gun must halt momentarily in order to fire these weapons accurately and to obtain maximum results from the limited supply of ammunition carried in tanks.

Immediately behind the rear-most tanks in the first echelon there were deployed foot troops moving at double time. Apparently none of these troops stopped at any time to fire or to take cover. They seemed to be intent on keeping as close as possible to the tanks.

The first wave of the second echelon caught up with, and began to pass through, the leading foot elements at a point opposite the spectators. The second wave of this tank echelon followed immediately in rear. This apparent merging of the two waves may have been due to limited visibility caused by the heavy fog. The third wave of the second tank echelon moved at a slower speed than the other waves. It was intermingled with what appeared to

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be a support echelon of foot troops. Thus, only the first tank echelon was entirely ahead of the foot troops and able to fire without endangering friendly ground personnel. However, the leading foot elements were only 200 yards from their line of departure at this time, and they still had approximately 500 yards to go before arriving on the forward part of the hostile position.

After foot troops and tanks had passed the observation point, the demonstration halted temporarily while the spectators were moved to another vantage point in the forward part of the enemy's position. Here the first tank echelon was again watched as it moved directly to its assumed targets, artillery and antitank guns farther to the rear. No tanks in this echelon stopped to attack hostile machine gun positions, which were represented by troops, wearing red cloth bands around their helmets and firing light machine guns in shallow emplacements.

In the second echelon, however, the leading tanks searched out these positions and simulated an attack on them. The tanks moving directly toward the positions fired their machine guns in short bursts and halted frequently for a few seconds to fire their 37-mm. or 75-mm. guns. While the tanks in the first wave were attacking their targets, those in the second wave remained some distance in rear, generally in partial defilade. The latter were apparently watching for hostile antitank guns and for new enemy machine-gun positions. Halts for observation or for fire were only momentary - never more than ten seconds in duration, and seldom more than five seconds.

The tanks in the third wave were intermingled with the infantry and, when observed, were moving at the infantry rate of advance. An individual in one of the leading infantry elements carried a red and white disc marker. It is probable that before the attack began the tank company commander gave this marker to the infantry commander with whom he was to operate so as to assist tank commanders in locating the infantry commander, if desired, during the attack.

The infantry-tank wave continued to move slowly forward into the hostile position. About one minute after it had passed the spectators, antitank guns towed by their half-track prime movers came into view and went into appropriate positions. Approximately two minutes behind the antitank guns came the empty personnel carriers. These are armored half-track vehicles designed to transport rifle units of the infantry brigade when they are not actually engaged in combat.

The end of the attack demonstration was in-

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dicated by a signal rocket at 11:10 A.M. immediately after the arrival of the personnel carriers. It is of interest to note that the fog lifted just at this time.

(b) Comment on Execution of the Attack

Organization. No information concerning the organization of the armored division was given during the demonstration, and answers to questions on the subject were indefinite and sometimes contradictory. Several tank officers stated that companies equipped with M-III and M-IV tanks were organized into three platoons of five tanks each and that experiments were still being conducted with various types of tank organizations. Observations and conversations at the demonstration lead to the belief that the school regiment is composed of a regimental headquarters, a maintenance company, and two tank battalions, each composed of a battalion headquarters, trains for supply, and three tank companies.

No armored car, motorcycle, artillery, or engineer units participated in the demonstration. The amount and type of instruction given in these organic elements of the armored division were not indicated.

Frontage. It is believed that a tank company is usually allotted a frontage of about 500 meters and a tank battalion a frontage of about one kilometer.

Assembly Point. During the demonstration, there was no indication as to the action or disposition of tank units after completion of the attack. In response to a question on this subject, one of the instructors stated that tank units would assemble in previously designated areas where they would not interfere with the action of foot troops but where they would be available for further action if needed.

d. Equipment and Materiel *

(1) Uniform

It was noted that the tank unit officers in the group wore the regulation long grey officer's overcoat and an overseas cap with the German tank unit uniform. No helmets of any type were observed on tank unit personnel. The infantry officers wore German steel helmets, overcoats, grey uniforms, and boots. Apparently there is no special overcoat for tank unit personnel.

* The observers were allowed to see all the personnel carriers, but they could inspect only one specimen of each other type of vehicle.

(2) Personnel Carriers

The school carrier has a very thin metal body—2.5 mm.—but the body of the combat type is said to be proof against shell fragments and small arms fire.

One machine gun can be mounted on each end of the body for antiaircraft purposes. There are recesses under the longitudinal seats on each of the two sides of the body for 22 ammunition boxes.

The normal personnel capacity is 12 men, five on each side of the carrier body and the driver and assistant driver on the driver's seat. On the march, the group leader usually stands behind the driver to observe. The rest of the personnel are protected when seated.

(3) 47-mm. Antitank Gun on Self-Propelled Mount

Only two 47-mm. antitank guns on self-propelled mounts were seen at the school, and only one was inspected. They are probably not standard equipment. A manufacturer's disc, attached to the gun inspected, indicated that it was made by the Skoda Company. Apparently it was a Skoda weapon mounted on a German M-I light tank chassis. The following characteristics were estimated:

Total Weight:	5 tons.
Length:	15 feet.
Width:	6 feet.
Height of body:	4 feet.
Height to top of shield:	8 feet.
Crew:	3 men.
Main armor:	3/8 inch, welded.
Armament:	47-mm. gun.
Ammunition:	100 rounds.
Trench crossing:	5 feet.
Vertical obstacle:	10 inches.
Vision:	Eye slits; telescopic sights on the 47-mm. gun.
Track:	Similar to that of the German M-I light tank.
Remarks:	The gun and crew protective shield is welded to the top of the hull. The gun traverse is limited to that provided by its mount. This is estimated to be a total of 30 de-

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grees. Search is estimated to be +30 degrees and -20 degrees from horizontal. The vehicle is equipped with a radio.

(4) M-II, M-III, and M-IV Tanks

The characteristics of these tanks have been given in TENTATIVE LESSONS BULLETIN No. 23, and the following information is supplementary.

The observers did not see an M-I light tank at the school. It was stated that this type was considered obsolete as a combat tank.

In a demonstration, the M-III tank turret was operated manually by a wheel. It functioned quite rapidly and apparently with ease. In order to operate the turret on the M-IV tank, the driver started an auxiliary gasoline engine which, it is believed, furnished power for an electric turret motor. This turret also turned quite rapidly and seemed to be well balanced.

Both the M-III and M-IV tanks were equipped with interphone systems. The tank commanders wore throat microphones and gave instructions to drivers in a conversational tone of voice.

The crews of the M-III and M-IV tanks are placed as follows:

Driver: left front.
Radio operator: right front.
Chief gunner: left side, rear of driver.
Machine gunner and assistant to chief gunner: right side, rear of radio operator.
Tank commander: turret, rear center.

No vision device was observed on any tank. It was stated that the best vision was obtained through aiming devices of the weapons.

Officers on duty at the school stated that as a result of battlefield experience they considered the M-IV their best combat tank. They added that Germany had built heavier tanks, but that these could not match the M-IV in performance.

The weights given for the M-IV varied from 18 to 22 tons. It is believed that the higher figure applies when the

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tank is fully loaded with crew, ammunition, and combat equipment. Some tanks of this type carried two sections of track, each section six to eight feet long. One section was carried on top of the hull just in front of the turret and the other just in rear of the turret.

e. Class Rooms

In the first of two class rooms visited by the observers, the instructor was conducting a map exercise in which he was questioning individual students as to selection of a "position of readiness"—an intermediate and an assault position combined—for a tank battalion. When answering questions, students stood at attention and gave their answers and explanations in a loud voice. During the visit, the commandant of the school interrupted by calling upon one student to come to the instructor's platform and announce his daily schedule of work.

In the second class, which was studying military law, the commandant again interrupted, this time by calling upon a student to relate his prior military training. Thus the German officer aspirant is trained to be constantly on the alert and to be able to express his thoughts logically and distinctly before a group of subordinates, equals or superiors. The students were all within a narrow age group, estimated at from 22 to 24 years.

On the walls of the class rooms there were aiming charts showing the front and side silhouettes of various types of tanks foreign to Germany. A white disc on the black background of the silhouette indicated the recommended point of aim for weapons firing at these tanks. There were also framed sketches, supplemented by printed remarks, to illustrate simple tank operations against some of the probable types of resistance to be encountered in a tank attack.

2. ARMY MOTORIZATION SCHOOL

a. Mission

The officer in charge stated the mission of the Army Motorization School in approximately these words:

> "The purpose of the school is to give technical and practical instruction in the operation and maintenance of motor vehicles used in the German Army. In war time all types of civilian vehicles are taken over by the government for military use. Therefore, our Army mechanics and operating personnel must be acquainted with practically every kind of

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motor vehicle used in Germany today. This applies especially to the leaders in motorized and armored units of the Army.

"The school also assists in development and testing of military motor vehicles and their accessories.

"About 500 supply and tool-room NCO's are trained in the school each year. Members of this group receive a three-month course. There is a two-month maintenance course which can be taken by 50 to 60 students at a time. Instruction in this course runs continuously throughout the year. The instructors and personnel who conduct schools for mountain motor transportation are also trained here."

b. Equipment and Materiel

"In general," continued the officer, "we have four types or classes of motor cargo vehicles--the 1½-ton, 2-ton, 4½-ton, and 6½-ton. You see in the line in front of you all types of motor vehicles used in the Army. School instruction covers use and maintenance of all of them."

The vehicles were lined up neatly on the clean cement surface between two sheds. The doors to all sheds in the Motorization School area were closed.

The following vehicles were included in the line, in this order:

(1) Three solo motorcycles.

(2) Three motorcycles with sidecars. One of these motorcycles was operated to show that it could move in reverse speed.

(3) One cross-country car equipped with four-wheel drive and four-wheel steering facilities.

(4) Two cross-country passenger cars, one for use in towing antitank guns.

(5) One cross-country car equipped with an experimental taillight for night convoy driving. The device consists of a small metal box approximately 8 feet x 4 feet x 3 feet. It has a shield which is hinged longitudinally to the center of the box. If turned down, this shield uncovers the upper half of the box, which has four windows. These windows constitute the night convoy lights. If the shield is turned up, it uncovers the lower half of the box

and covers the upper half. The lower half of the box has two windows which are used for normal night driving.

This particular device is constructed so that the four lights appear to be one light at distances over 100 yards. They appear to be two lights at distances between 40 and 100 yards. At distances less than 40 yards, all four lights can be seen. The device operates on the same principle as the light developed by instructors at the Infantry School, Fort Benning, Georgia, and described in the Infantry Journal of May-June, 1940.

(6) Two 2-ton cargo trucks, one with 2-wheel drive and one with 4-wheel drive. Construction of the trucks is such that they can be changed from 2-wheel to 4-wheel drive in two hours' time.

(7) Two cargo trucks with six wheels and 6-wheel drive.

(8) One 2-ton cargo truck equipped with coal burning gas generator. This truck is provided with an auxiliary gasoline tank for emergency use and for rapid starting. The instructor stated that it cost 4 pfennigs per kilometer to operate this type of truck with gas generator fuel, and 9 pfennigs a kilometer to operate it with gasoline.

(9) Four tanks without turrets or weapons, one of each type: M-I, M-II, M-III, and M-IV. These vehicles are used for instruction of tank drivers.

(10) One truck, 4½-ton. The front end is modified to provide for a snow scraper, which is attached.

(11) One ambulance with air-cooled engine.

(12) One "Volkswagen", a popular 4-passenger automobile modified for military use. This vehicle has a 28 horse power, air-cooled, horizontally opposed, 4-cylinder engine located in the rear of the body. It is a front-wheel drive. The instructor claimed that its maximum speed was 60 miles per hour and that it used only 6½ liters of gasoline per 100 kilometers, or 2.3 gallons per 100 miles. A fuel tank, estimated to hold ten gallons, is located under the hood in front of the driver. Clearance above ground is approximately 14 inches. The drive shaft from the transmission to the engine is in a tunnel raised about four inches above the floor. An extra tire is carried in front on top of the hood. The vehicle has excellent cross-country ability and appears to be rugged and sturdy.

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The observers were taken on an extended cross-country ride in half-track prime movers, whose ability closely approached that of the full-track type. They appeared to be rugged and capable of extended field service without excessive wear and tear. German officers who had used them in France and Poland expressed satisfaction at their performance.

3. CONCLUSIONS OF OBSERVERS

a. Tanks and other motor vehicles in the German Army are standing the strain incident to extensive field service. They are being maintained in first class condition by rigid and thorough application of up-to-date, intelligent maintenance methods.

b. The German Armored Troop School, with its various sections, is constantly carrying out experiments to develop and test new materiel and methods of employing it to improve standards, already high, in motorized and armored units.

c. Although details of organization may vary in German armored units, instruction imparted at the school serves to obtain uniformity in training and maintenance methods within these units.

d. The purpose of current courses of instruction at the school is to provide qualified personnel for existing vacancies in armored and motorized units rather than to provide personnel for newly created units.

e. The goal of instruction at the school is to make each armored unit a smooth working organization rather than a collection of individual experts. To accomplish these results, three ideas are constantly drilled into the minds of the students: cooperation, simplicity, and flexibility.

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SPECIAL BULLETIN
No. 28
G-2/2657-231

MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT
Washington, December 9, 1940.

NOTICE

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OPERATIONS OF THE FRENCH SEVENTH ARMY, MAY 10-JUNE 24, 1940

SOURCE

This bulletin contains a report signed by the commanding general of the Seventh Army on June 27, 1940. American official observers believe it gives a good picture of the rapid retreat effected by the French force and the energetic manner in which the Germans followed up this retreat. It will be noted that some units of the Seventh Army escaped, whereas the Third and Fifth Armies were completely surrounded.

In order that the exact ideas of the author may be preserved, the document as presented here is a verbatim translation, unedited and unrevised.

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VII ARMY
GENERAL STAFF
3rd Bureau
No. 3036 3/3

Army Headquarters, June 27, 1940.

NOTE ON THE OPERATIONS OF THE SEVENTH ARMY FROM MAY 10 TO JUNE 24, 1940.

On May 19th, General FRERE, who two days previous had been entrusted with the mission of directing the concentration of the Large Units charged with protecting the region ST. QUENTIN - PARIS, took command of the Seventh Army. The Staff of this army, which the night before was still functioning in the neighborhood of GHENT, was moved in great haste to the region of BEAUVAIS.

A new period was beginning for the VII Army.

The situation was as follows:

The effort of the German Army was obviously directed toward the coast with a view to taking possession of the ports and definitely cutting in two the French Armies. Nevertheless, facing South, the enemy had strong covering forces consisting of armored vehicles and motorized troops, certain elements of which had already gained a foothold South of the Somme, above AMIENS. On the other hand, it was to be feared that the action might extend along the Somme in the direction of the sea.

The Army consisted of the 24th Army Corps (23rd Infantry Division and 3rd Light Infantry Division) situated between the OISE from CHAUNY and BETHANCOURT. Further to the West, the divisions of the 1st Army Corps (19th Infantry Division and 7th North African Infantry Division and the 4th Colonial Infantry Division) were detraining.

However, the threat from the North must immediately be coped with; the enemy armored vehicles must be stopped and - a matter of vital importance - the concentration of the Army must be possible of accomplishment. The sapper-engineers of the General Reserve had already been sent forward without infantry protection, to prepare the bridges for destruction. On May 20th the anti-tank barrages were established thanks to the help of the Reconnaissance Groups. The Army reinforced them with armored-cars, tanks, and anti-tank guns which came from the Eleventh Army, as well as with 75 mm. guns from the Portés Battalions of the General Reserve. Certain of these guns offered an heroic resistance to the enemy, the gunners preferring to be killed on the spot rather than abandon their materiel.

A considerable effort was demanded of all these elements; it was thus that the Corps Reconnaissance Group of the 1st Corps,

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returning from HOLLAND, where it had participated from the outset of operations in severe combats, was immediately thrown into the battle southeast of AMIENS and succeeded in stopping the enemy at the cost of severe losses.

Another cause for much concern was the enemy aviation which was relentless in its attacks on railway lines and, as a result the detraining of Divisions was effected at an irregular rhythm, 4 to 5 days behind schedule.

Beginning May 22nd, the German onrush was stemmed; however, the enemy had gained the necessary bridgeheads south of the Somme to enable him to launch easily an offensive at a later date. For the moment, he had to be satisfied with the results obtained, for he had to concentrate his efforts on the annihilation of the First Army and the British Army.

The Commander-in-Chief ordered the Seventh Army to border the Somme river and make a series of energetic attacks. Then it was to cross the obstacle in order to assist the Armies fighting in the region of ARRAS and in FLANDERS.

The execution of these orders was immediately undertaken, but owing to the feeble means available to the Army, whose divisions were deployed on extended fronts: 15 kms or more on an average, it soon became obvious that it would be impossible to give satisfaction to the High Command. The German troops opposed a strong resistance and counter-attacked every time to regain lost territory.

German reaction was particularly active in the region of ABBEVILLE where the 4th Armored Division made but slight advances. The enemy, well entrenched and camouflaged as well as abundantly equipped with anti-tank weapons, inflicted very severe losses on our tanks.

In certain cases, the enemy used its bombing aviation whose effects were dreadful particularly insofar as the black troops of the 7th Colonial Infantry were concerned.

On May 29th it became evident to the High Command that it would be impossible to reduce the German bridgeheads south of the Somme. In view of the attack that everyone knew was imminent, it was only a question of organizing the position defensively in order to oppose the enemy thrust.

First of all, and above everything else, the armored vehicles must be stopped. Consequently the troops were ordered to form themselves into strong points which would be made impenetrable

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to tanks. Part of the artillery was used as anti-tank guns. Echeloning in depth was effected as far as the weak effectives available to the Army permitted.

Instructions were issued to resist on the spot. Insofar as armored means would permit, the strong points would be delivered by means of counter-attacks.

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On June 5th the attack was launched. It started by a violent bombardment along the entire front. The 19th Division, deployed northeast of the bridgehead of PERONNE, bore the brunt of a Panzer Division attacking on the axis PERONNE - ROYE. The action of the tanks was prepared and supported by extremely violent dive-bombing on the strong points, the C.P's and generally on all villages.

In spite of the violence of the attack, the strong points were held; it was even possible to supply most of them by means of small track-laying cars during the night of June 5th-6th.

Enemy infantry in this region did not prove to be very aggressive; a counter-attack made June 5th by the 41st Infantry (19th I.D.) resulted in the capture of 150 prisoners.

It would seem that at this time the unity of the front could have been maintained if the intervals between the encircled strong points could have been cleared by armored units.

On June 6th, the attack was resumed with renewed strength on the 19th Infantry Division and the left wing of the 29th Division. An enormous mass of tanks - almost one thousand - said the observers, was reported. During the night June 7th-8th by order of the Army the 19th and 29th divisions withdrew in rear of the second position. It was then that the 7th North African Infantry Division and the 47th Infantry Division, occupying this second position, were to bear the brunt of the German assault.

To cope with the enormous mass of German tanks, a powerful counter-preparation based on heavy artillery and aviation was executed during the nights June 7th-8th and 8th-9th. These fires had a very definite neutralization effect: the mechanized German forces did not interfere in the withdrawal as much as might have been expected.

The thrust of the enemy armored vehicles in the direction of ROYE, combined with a German attack debouching from NOYON threatened to pinch out the 23rd Infantry Division and the 3rd Infantry Division. These divisions were engaged in the salient formed by the

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CROZAT Canal and the OISE. They were obliged to withdraw fighting their way through enemy columns. The 23rd Division in particular was saved thanks to the cool-headedness and maneuvering ability of its commanding general.

On the right wing, the 87th Division, on the AILETTE suffered the assault of 4 enemy divisions. It withdrew to the AISNE after a splendid resistance.

The withdrawal toward the OISE was carried out without major difficulties in spite of infiltrations of enemy units which threatened the western columns. However, the crossing of the river was for the Army a severe test.

The bridges of CREIL, PONT SAINT MAXENCE and COMPIEGNE were blown up June 9th at about 4:00 P.M. as a result of a bombing which set fire to the prepared explosive charges. A little later the bridge of VERBERIE blew up. In certain places, enemy armored vehicles reached the bridges ahead of our troops. As a result, in spite of the devotion to duty of the sapper engineers who endeavored throughout the night to insure the passage of troops only one heavy bridge company succeeded in affording passage for 1200 men - a large number of men and a great deal of materiel remained in enemy hands. The Infantry, in particular, was obliged to abandon part of its organizational equipment and its anti-tank armament.

Owing to the severe combats which had taken place ever since June 5th and to the fatigue of the withdrawal, the exhaustion of the men was extreme.

The German menace south of the Oise, by way of the VERBERIE bridge, as well as the enemy advance on the front of the Sixth Army, obliged the elements that were still in the forest of COMPIEGNE, threatened on three sides, to withdraw. This operation was carried out under enemy pressure and very difficult conditions.

During this period, transport means were used to the fullest extent. It was under the fire of enemy automatic weapons that certain transport groups went to get the Infantry in the salient of HAM and in the forest of COMPIEGNE. The losses of these five days of combat were very heavy: 5 divisions were reduced each to the value of one, two, or three battalions and a few batteries of artillery.

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During the following days, always without protection on its right flank due to the German advance on the front of the Sixth

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Army, the Seventh Army started a continuous withdrawal the stages of which were as follows:

Night of June 10th-11th:	Position marked by the OISE above BORAN, the NONNETTE, northern edge of the ROI Woods, LEVIGNAN - RETZ.
Night of June 12th-13th:	OURCQ - MARNE Canal.
Night of June 13th-14th:	MARNE above ESBLY - the GRAND-MORIN.
Night of June 14th-15th:	line VILLENEUVE ST. GEORGES - BRIE COMTE ROBERT, VERNEUIL L'ETANG, NANGIS, MAISON ROUGE.

June 14th, the enemy, not very aggressive on the front of the Army, crossed the SEINE at NOGENT. It was therefore indispensable to contemplate a large scale withdrawal in rear of the LOIRE (90 Kms).

The following decision was taken: the divisions still north of the Seine were to be transported by rail. The break-off of the divisions left on the Seine to defend the passages would be effected by using available motor transport to the fullest extent.

It should be noted that between the SEINE and the LOIRE, the movement of troops was rendered impossible by the refugees who congested the roads: several lines of motor cars and horse-drawn wagons. Villages and crossroads were the center of a nondescript congestion. In many places it took several hours to cover a few kilometers. Furthermore, the bridges on the Loire were badly damaged by bombardment. While the Infantry on foot crossed easily, the same was not true of the trucks left without support on the right bank of the Loire; their passage across the river was made possible in part by the train.

June 17th, the Germans crossed the LOIRE at ORLEANS and at LA CHARITE.

The Seventh Army threatened on both wings, continued its withdrawal on the CHER. The same day the French Government started negotiations with the enemy with a view to concluding an armistice. The news was soon known by all. Its effect upon the Army, tired out by exhausting marches during this uninterrupted withdrawal, was easy to foresee. It was rendered worse by the fact that the Germans tried to use the prospect of an imminent armistice to disarm our troops, or to force them to make a hasty withdrawal.

Hence, it was absolutely necessary to remove the Army from

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German pressure. The only objective to be attained was to prevent the maximum number of elements from capitulating in the open.

In spite of the activity of the motor transport groups working night and day; in spite of unimaginable fatigue, it was impossible to transport by truck all the Infantry of the Army. On June 18th, the remains of the 19th Division, and on the 20th those of the 29th and 47 divisions, surrounded north of the Cher River by numerous armored vehicles, were captured.

That very same day the Army started its withdrawal on the CREUSE.

On June 21st orders were issued to the Army artillery and engineers to make available to the infantry, insofar as possible, the trucks previously used for the transport of materiel.

The Army withdrew on VIENNE-de-LUSSAC, la FRANCHE LOIRE and the course of the GARTEMPE.

June 23rd orders were issued to continue the withdrawal on the VIENNE.

June 24th, a withdrawal on the DRONNE and the AUVENERE was contemplated.

During the evening, the news of the cessation of hostilities interrupted the operations of the Seventh Army.

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After having fulfilled with discipline and a spirit of sacrifice its difficult mission on the SOMME, the Seventh Army successfully carried out a withdrawal maneuver of more than 500 kms. It thus avoided capitulation in the open, and brought back all of its Large Units, having suffered losses and exhausted to be sure, but having maintained their unity. Therefore, the German command can not say - as it had announced - that it had annihilated the French Army.

One must go far back in French history to find examples of a withdrawal on such a large scale. The action of aviation and of armored vehicles rendered incomparably more difficult the execution of such withdrawal.

The results - so vital from the national point of view - were obtained only at the cost of severe losses of life, and also at the cost of superhuman efforts on the part of the troops.

Future generations must know this.

Commanding General, Seventh Army,
Signed: FRERE.

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SPECIAL BULLETIN
No. 29
G-2/2657-231

MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT
Washington, December 14, 1940

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CHARACTERISTICS OF GERMAN ANTIAIRCRAFT AND ANTITANK MATERIEL

SOURCE

The information contained in this bulletin was supplied by an American official observer in Paris late in October, 1940. For other information on German materiel, see TENTATIVE LESSONS BULLETIN NO. 20, "The German Artillery."

CONTENTS

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1. ANTIAIRCRAFT MATERIEL

a. 20-mm. Machine Gun, 30

Field of fire: Horizontal, 360 degrees
Vertical, -10 to 90 degrees
Weight in battery: 460 kilograms
Means of transportation: Tractor
Rate of fire: 320 rounds per minute
Projectile: Automatic explosive
Initial velocity: 845 meters per second
Maximum vertical range: 4200 meters
Weight of shell: 0.14 kilograms
Remark: Also used against tanks

b. 37-mm., Model 1918

Field of fire: Horizontal, 360 degrees
Vertical, +5 to 85 degrees
Weight in battery: 1750 kilograms
Means of transportation: Two-wheel trailer
Rate of fire: 160 rounds per minute
Projectile: Automatic explosive
Initial velocity: 840 meters per second
Maximum vertical range: 4800 meters
Weight of shell: 0.625 kilograms

c. 75-mm. Krupp

Field of fire: Horizontal, 360 degrees
Vertical, +5 to 85 degrees
Weight in battery: 2570 kilograms
Means of transportation: Tractor
Rate of fire: 20 rounds per minute
Projectile: Explosive with mechanical fuse
Initial velocity: 850 meters per second
Maximum vertical range: 11,300 meters
Weight of shell: 6.5 kilograms
Weight of explosive: 0.5 kilograms

d. 80-mm. Rheinmetall

Field of fire: Horizontal, 360 degrees
Vertical, -3 to 80 degrees
Weight in battery: 3800 kilograms
Means of transportation: Tractor
Rate of fire: 25 rounds per minute
Projectile: Explosive with powder fuse

[redacted]

[redacted]

Initial velocity: 750 meters per second
Maximum vertical range: 9000 meters
Weight of shell: 8 kilograms
Weight of explosive: 0.510 kilograms

e. 88-mm. Rheinmetall

Field of fire: Horizontal, 360 degrees
Vertical, -10 to 70 degrees
Weight in battery: 6000 kilograms
Means of transportation: Tractor
Rate of fire: 20 rounds per minute
Projectile: Explosive with mechanical fuse
Initial velocity: 760 meters per second
Weight of shell: 9 kilograms

f. 88-mm. Krupp

Field of fire: Horizontal, 360 degrees
Vertical, -3 to 85 degrees
Weight in battery: 5000 kilograms
Means of transportation: Tractor
Rate of fire: 20 rounds per minute
Projectile: Explosive with mechanical fuse
Initial velocity: 840 meters per second
Maximum vertical range: 10,600 meters
Weight of shell: 14.7 kilograms

g. 105-mm. Rheinmetall

Field of fire: Horizontal, 360 degrees
Vertical, 0 to 70 degrees
Weight in battery: 5500 kilograms
Rate of fire: 20 rounds per minute
Projectile: Explosive with mechanical fuse
Initial velocity: 710 meters per second
Weight of shell: 17.4 kilograms
Remark: Fixed gun

h. 105-mm. Rheinmetall

Field of fire: Horizontal, 360 degrees
Vertical, -10 to 80 degrees
Weight in battery: 11,750 kilograms
Rate of fire: 20 rounds per minute
Projectile: Explosive with mechanical fuse
Initial velocity: 1000 meters per second
Maximum vertical range: 17,000 meters

[redacted]

Weight of shell: 15.8 kilograms
Weight of explosive: 1.725 kilograms

i. 125-mm. Antiaircraft Gun

Means of transportation: Caterpillar tractor
Rate of fire: 15 rounds per minute
Initial velocity: 1000 meters per second
Maximum vertical range: 12,000 meters

2. ANTITANK MATERIEL

a. 37-mm. Antitank Gun

Field of fire: Horizontal, 60 degrees
Weight in battery: 310 kilograms
Means of transportation: Horse or tractor
Rate of fire: 20 rounds per minute
Initial velocity: 800 meters per second
Perforation: At 300 meters, 45 mm.
At 750 meters, 30 mm.
Remark: Mount has mobile trail

b. 37-mm. Antitank Gun

Field of fire: Horizontal, 60 degrees
Vertical, -8 to 25 degrees
Weight in battery: 440 kilograms
Means of transportation: Tractor
Projectile: Explosive shell with fuse in base or with fuse in nose
Initial velocity: 825 meters
Perforation: At 400 meters, 40 mm.
At 1000 meters, 14 mm.
Weight of shell: 0.69 kilograms
Remark: Mount has mobile trail

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MILITARY INTELLIGENCE DIVISION
WAR DEPARTMENT
Washington, December 23, 1940

NOTICE

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CHARACTERISTICS OF MACHINE GUNS USED BY GERMANY

SOURCE

The information contained in this bulletin is from a British official source as of October 10, 1940.

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[redacted]

1. MACHINE GUNS FOR LAND SERVICE

a. Dual Purpose Machine Gun 34

Caliber: 7.92 mm.
Year of service: 1934.
Weight: 27 pounds on tripod.
Maximum range: Direct, 320 yards.
Indirect, 3800 yards.
Effective range: 1500 yards.
Mountings: Bipod, tripod, and antiaircraft.
Practical rate of fire: On bipod, 110 to 120 rounds per minute.
On tripod, 250 to 350 rounds per minute.
Sights: Leaf and Barleycorn: optical and antiaircraft ring sight.
Ammunition: Ball, tracer, armor piercing, and armor piercing incendiary.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Belt or drums for antiaircraft fire.

b. Dreyse Light Machine Gun 13

Caliber: 7.92 mm.
Year of service: 1913.
Weight: 26.5 pounds.
Maximum range: 2180 yards.
Effective range: 1000 yards.
Mountings: Bipod and antiaircraft.
Practical rate of fire: 120 rounds per minute.
Sights: Leaf and Barleycorn; antiaircraft ring sight.
Ammunition: Ball, tracer, armor piercing, and armor piercing incendiary.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Box magazine or drum.

c. BSW Light Machine Gun

Caliber: 7.92 mm.
Year of service: 1938.
Weight: 27 pounds.
Mountings: Bipod and antiaircraft.
Practical rate of fire: 150 rounds per minute.
Sights: Aperture and antiaircraft ring sight.

[redacted]

Ammunition: Ball, tracer, armor piercing, and armor piercing incendiary.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Metallic belt.

d. Light Machine Gun 08/15

Caliber: 7.92 mm.
Year of service: 1915.
Weight: 39.75 pounds.
Effective range: 800 yards.
Mountings: Tripod and antiaircraft. (The gun can also be fired without mounting).
Practical rate of fire: 150 rounds per minute.
Sights: Leaf and Barleycorn.
Ammunition: Ball, tracer, armor piercing, and armor piercing indenciary.
Method of cooling: Water.
Method of operation: Maxim principle.
Ammunition feed: Metallic belt or drums.

e. Heavy Machine Gun /08

Caliber: 7.92 mm.
Year of service: 1908.
Weight: With cradle mounting, 141 pounds.
With tripod mounting, 123 pounds.
Maximum range: 3800 yards.
Mountings: Cradle or tripod.
Practical rate of fire: 300 rounds per minute.
Sights: Optical.
Ammunition: Ball, tracer, armor piercing, and armor piercing incendiary.
Method of cooling: Water.
Method of operation: Maxim principle.
Ammunition feed: Metallic belt.

f. Knorr-Bremse Light Machine Gun

Caliber: 7.92 mm.
Year of service: 1939.
Weight: 22 pounds.
Maximum range: 2100 yards.
Mountings: Bipod.
Practical rate of fire: 300 to 400 rounds per minute.
Ammunition: Ball tracer, armor piercing, and armor piercing incendiary.
Method of cooling: Air.

[redacted]

Ammunition feed: Magazine.

g. Schwarzlose M 7/12 Heavy Machine Gun

Caliber: 7.92 mm.
Year of service: 1912.
Weight: 84.75 pounds.
Maximum range: 5450 yards.
Effective range: Direct, 2600 yards.
Indirect, 3800 yards.
Mountings: Tripod.
Practical rate of fire: 300 rounds per minute.
Sights: Optical.
Ammunition: Ball, tracer, armor piercing, and armor piercing incendiary.
Method of cooling: Water.
Method of operation: Inertia.
Ammunition feed: Belt.

2. MACHINE GUNS FOR AIR SERVICE

a. Machine Gun 17, Dreiser

Caliber: 7.92 mm.
Weight: 27.75 pounds.
Mountings: Ball swivel.
Sights: Aircraft ring sight.
Ammunition: Ball, armor piercing, armor piercing incendiary, tracer, armor piercing tracer, explosive.
Method of cooling: Air.
Method of operation: Recoil.
Ammunition feed: Metallic belt.

b. Machine Gun 15

Caliber: 7.92 mm.
Weight: 15.75 pounds.
Mountings: Ball swivel.
Practical rate of fire: 600 rounds per minute.
Sights: Ring foresight, pillar backsight.
Ammunition: Ball, armor piercing, armor piercing incendiary, tracer, armor piercing tracer, explosive.
Method of cooling: Air.
Method of operation: Recoil.
Ammunition feed: Saddle type drum magazines.

[redacted]

[redacted]

c. T.6-200

Caliber: 7.92 mm.
Weight: 22 pounds.
Mountings: Fixed aircraft.
Practical rate of fire: 1100 to 1200 rounds per minute uncontrolled.
Sights: Reflex Revi 3a.
Ammunition: Ball, armor piercing, armor piercing incendiary, tracer, armor piercing tracer, explosive.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Disintegrating metal belts.

d. T.6-220

Caliber: 7.92 mm.
Weight: 15.8 pounds.
Mountings: Movable aircraft.
Practical rate of fire: 1000 to 1100 rounds per minute uncontrolled.
Sights: Reflex EZ or Reflex Visier 6a.
Ammunition: Ball, armor piercing, armor piercing incendiary, tracer, armor piercing tracer, explosive.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Twin drums.

e. Machine Gun 131

Caliber: 12.7 mm.
Ammunition: Armor piercing, armor piercing incendiary, tracer.
Method of cooling: Air.
Ammunition feed: Belt.

3. MACHINE GUNS OF OCCUPIED COUNTRIES*

a. Madsen M. 29

Caliber: 8 mm.
Weight: 69.5 pounds with tripod.
Maximum range: 4900 yards.

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* Only those guns which are likely to be used are included uner this heading. All of them are guns for land service.

[redacted]

[redacted]

Effective range: Direct, 1300 yards.
Indirect, 3200 yards.
Mountings: Bipod, tripod, and antiaircraft.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Box magazine.

b. Madsen M.24

Caliber: 8 mm.
Weight: 47.5 pounds.
Maximum range: 4900 yards.
Effective range: 1300 yards.
Mountings: Bipod, tripod, and antiaircraft.
Practical rate of fire: 300 rounds per minute.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Box magazine.

c. Madsen Heavy Machine Gun

Caliber: 20 mm.
Weight: Without mounting, 121 pounds.
With universal mounting, 780 pounds.
Maximum range: 6500 yards.
Effective range: 4300 yards.
Mountings: Universal and field mounting with wheels.
Practical rate of fire: 125 rounds per minute.
Sights: Optical ground sight, Madsen optical anti-aircraft sight, and antiaircraft ring sight.
Ammunition: High explosive, armor piercing, and tracer.
Method of cooling: Air.
Method of operation: Short recoil.
Ammunition feed: Drum magazines.

d. Czech 2,B L/86

Caliber: 15 mm.
Year of service: 1938.
Weight: 125 pounds.
Maximum range: 1600 yards (vertical).
Mountings: Mobile antiaircraft, collapsible wheels.
Practical rate of fire: 400 rounds per minute.
Sights: Ring and optical antiaircraft.
Ammunition: High explosive, tracer.
Method of cooling: Air.
Method of operation: Gas.
Ammunition feed: Belt.

[redacted]